

PURCHASING

OCTOBER, 1940.....CONTENTS

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When you overload wire rope you reduce its safety factor and thereby limit its efficiency and shorten its life. Wire rope that doesn't have an adequate factor of safety (the ratio between the rated breaking strength of the rope and the load applied) can't bend as it should and fatigues rapidly. On the other hand, when a wire rope has an adequate factor of safety its service life is materially increased. For instance, a rope having a safety factor of 6 often lasts twice as long as the same rope having a safety factor of only 4.



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for
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AMERICAN CHAIN & CABLE COMPANY, Inc.

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SECONDARY SUPPLIES ARE VITAL TO PRODUCTION



THE procurement of National Defense materials is a large scale job—so large that the production division of the Advisory Commission is said to concern itself only with projects of a half-million dollars or more.

Last June we pointed out that smaller items are just as vital to the success of the program, that a million dollar production schedule may be blocked or delayed by the lack of one small tool or some relatively minor item of supply. Developments of the past four months indicate that this simple

and obvious fact is likely to be the crux of the problem. The first serious bottle-neck of production is due to occur in items of this nature, rated as a secondary consideration despite their critical importance. It is due to occur very soon, perhaps even before the end of the year, unless steps are taken immediately to insure a continuing supply.

To neglect that angle of procurement and production may precipitate a tragic recurrence of the classic situation in which the want of a horse-shoe nail resulted in the loss of the shoe, the horse, the rider, the message, and the battle.

Preliminary returns from a survey of supply house stocks and manufacturers' stocks already show a critical shortage looming in precision instruments, forged steel fittings, pillow blocks, tool holders, Turkish emery, and other supplies essential to production. Manufacture of hardware staples and in other fields is already being diverted to products that are nominally of primary importance, but at the expense of equally vital secondary supplies.

Washington must not forget that the placing of governmental defense orders is only the beginning of procurement. Deliveries, not contracts, are the measure of success in buying. Each contract sets in motion a series of industrial processes. One of the first effects of such orders is to pose an urgent problem for industrial Purchasing Agents of vendor companies, who must locate the supplies and materials and equipment for production. That problem is daily becoming more difficult. Effective coordination in the defense procurement program must include a specific provision for keeping open the sources and channels of secondary supplies.

Stuart F. Weinritz



Ryerson Night Loading Assures Quicker Deliveries

It's after hours, at any of the ten Ryerson steel plants, almost any night of the year!

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RYERSON



Entrance to world's largest purchasing agency—The United States Government.

STREAMLINED PROCUREMENT DIVISION BUYS FOR THE UNITED STATES GOVERNMENT

By A. N. WECKSLER

THERE was a day when the Secretary of Treasury of the United States found it difficult to make a loan from private bankers to meet the current expenses of government. That was the time of the Revolution when a young Republic was hard pressed with debt, and even the then limited necessities of administration could not be purchased without negotiating special loans.

A far cry, indeed, from the present vast purchasing power of the United States Government. Now, on term contracts alone, for the common items of supplies, the purchases of the agencies of the American Government exceed \$60,000,000 a year.

These purchases are made through the Procurement Division of the United States Treasury, an agency which wields the greatest concentration of purchasing power in the world.

Until recently, the Procurement Division sprawled into many divergent fields, but since the Administration's government reorganization program, it has been streamlined into a concentrated purchasing agency.

The agency has been divested of unimportant detail, and as now constituted, enables a coordinated control without insisting upon the smothering effect of centralized operation.

In its new form, the Procurement Division is engaged, for the current fiscal year, in purchasing more than \$60,000,000 in ordinary supplies under term contracts, and more than \$230,000,000 in direct purchases of special items required by government.

In addition to its purchasing function, the Division formerly contracted for and leased buildings for Government agencies, but this function, under the reorganized Government setup, has been given over to another department. Now the Procurement Division is concerned primarily with purchasing.

Under the Government reorganization program, the Division has been redesigned for the better accomplishment of four objectives. These objectives are:

1. Minimizing overhead cost by eliminating the duplication of purchases.
2. Standardization of character and quality of re-



By law, bids must be opened in public. Scene shows procurement employees opening bids while interested spectators look on.

Successful bidders ship their orders and merchandise is received in Government warehouses.



quirements through study of actual needs and establishment of standards accordingly, as reflected by adequate specifications.

3. Lowest prices consistent with proper standards and a competitive market.

4. Better opportunity to apply effective inspection practices.

Samples are classified and are kept to check against deliveries.

This automatic machine is tabulating a record of purchases from punch cards.

Tabulations of bids are made a matter of public record, and are open to the public.



It is especially true that in these open market purchases, the trained personnel of the Procurement Division is able to effect savings through application of proper specifications and thorough inspection work.

The third category of purchases is for replenishment of stock in the warehouse, and under this activity, commodities of most common use (standard foodstuffs, office supplies, janitor's materials, etc.) are warehoused in the Procurement Division Building. These purchases are more in the nature of inter-office transactions, where the Division makes purchases from existing contracts, or makes contracts so as to be able to draw on them for stock.

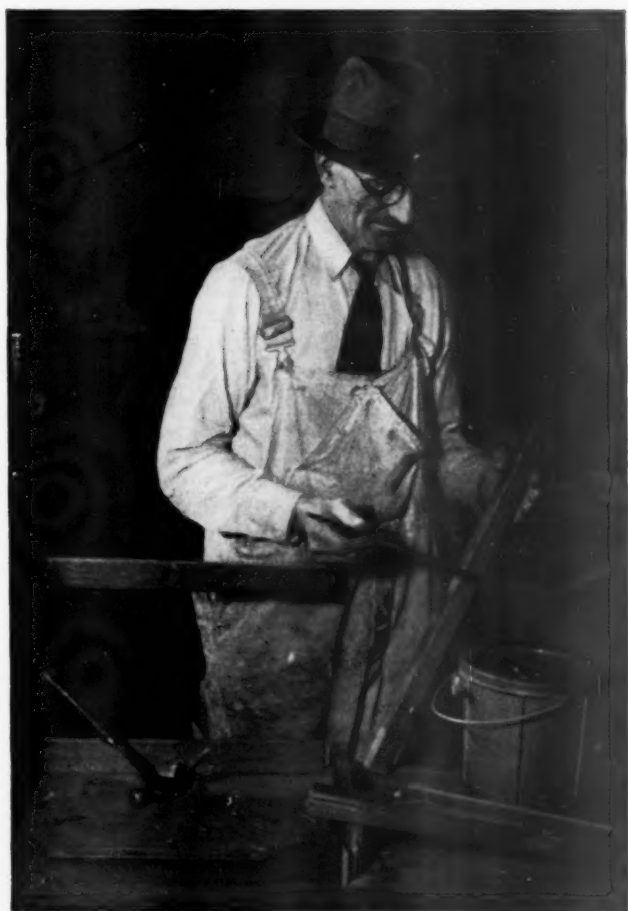
These modes of purchasing can best be illustrated by tracing their operation.

Upon receipt by the Procurement Division of a requisition for supplies from a Government agency,

Right: All typewriter repairs are done at a Procurement Division repair shop. New York City has recently adopted same system.

Lower Right: Examiners closely scrutinize samples which accompany bid, and make award recommendations.

Below: Surplus furniture is repaired by Procurement Division and then "sold" to various Government departments, which prefer to economize and expend their budget on other fields.





Large coal yards are maintained by Procurement Division for use by Government departments in Washington.

The coal is handled as if it were being sold. Each truck load is weighed, and the coal billed to the purchaser.



this requisition is recorded and reviewed. In the event that it is not a stock item and has to be ordered, it is referred to the Commodity Group responsible for buying the particular commodity involved. The Commodity Group decides to purchase the item, and it follows by law that invitations to bid be extended to as broad a field as possible.

It is an important function of the Procurement Division to maintain a current mailing list of sources of supply, and then it is decided to extend "Invitations to Bid," a mailing list of all eligible bidders is prepared.

An invitation to bid is essentially a request for quotations on supplies. Each invitation includes several standard features, such as general conditions which stipulate observance of applicable statutory requirements (fixing hours and wages; prohibiting child labor; restrictions to insure delivery of goods of American origin) and also include provision by which, in the event of contractor's default, the Government may purchase in the open market, and hold the contractor responsible for any resulting loss. The invitation includes special instructions as to packing, handling and delivery; the specifications fully set forth the quality desired.

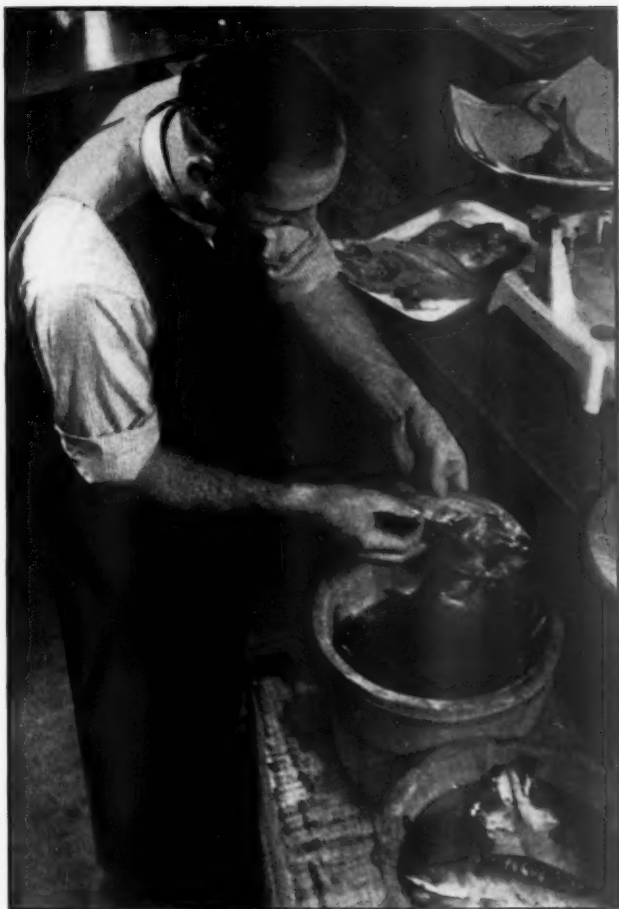


Procurement Division maintains its own automobile repair shop.

Efficient modern equipment is used in handling materials.

Merchandise arrives in various types of containers, and is stored for future use or immediate delivery to a particular Government department.





Left: Food being inspected and weighed before acceptance.

Sampling and testing of food products is a specialist's job.



Bids submitted in response to this invitation are opened in public at the time specified, and a clear announcement is made of each bidder's offer, including price, discount, and other basic information. Following the public reading, the bids are tabulated in such a manner as to be easily compared.

The bids are next examined by the Commodity Group which is supervising the transaction, and this group evaluates the various offers and determines which of those meeting all requirements is the lowest in price. Award is then made to the bidder meeting these requirements.

These steps generally complete the cycle in the negotiation of term contracts, but procurement procedure involving spot transactions necessarily requires additional steps leading to the actual delivery of merchandise. To facilitate this end, the Commodity Group details on a "Purchase Order Ticket" all information essential to adequate description, delivery conditions, etc.

Further, since shipment of Federal property must be made on Government Bills of Lading, when a purchase is made F.O.B. shipping point, the Traffic Section is required to furnish appropriate routing. When these details have been completed, purchase orders are prepared in multiple copy, and carbons are distributed among accounting and administrative offices.



Arriving at destination. Supplies being unloaded at a Government office.

A wide variety of stationery supplies is kept on hand in the warehouse.



Coincidental with the issuance of the purchase order, there is prepared an invoice on which delivery is to be acknowledged. Official acknowledgment that delivery meets contract requirements must be on file with the Procurement Division before payment can be made by the Government.

The vendor's bill may be submitted on the regular Government voucher form or on the firm stationery. Upon receipt in the accounting office, the vendor's bill is associated with a copy of the purchasing order, and

the contract and evidence of acceptable delivery. It is then audited and, if in order, available discount is taken and the account forwarded to the disbursing office for payment.

It is only when public exigencies require immediate delivery, as in the protection of life and property, that purchases can be made without observance of competitive bidding, but even in the case where, due to emergency, bidding is dispensed with, payment covering such transaction cannot be made until evidence justifying the departure from routine is presented.

It becomes obvious that when a single purchasing agency is charged with the duty of contracting for the needs of various Government departments that many different items will be purchased. However, the actual number of different items which have been purchased staggers the imagination.

Left: When contracts are made F.O.B. point of shipment, a Government Bill of Lading must be used as evidence of shipment.

Lower Left: Government agencies whose purchasing is done by the Procurement Division send a requisition for materials or services to the Division, in the form of a Purchase Authority.

Before payment can be made, the consignee (Government Department or Bureau) must certify on the invoice that merchandise has been received in good order and in full quantity. The certified invoice copy is sent to the Procurement Division.



The voucher is audited before payment.



Laboratory men give cloth a thread count.



The desired supplies are delivered to the user on Government trucks.

All supplies purchased by the Government are precisely identified and catalogued according to a pre-arranged system to assure the use throughout the Government service of a standard commodity nomenclature and to facilitate the establishment of uniform records. More than 500,000 items have been so catalogued to date.

This huge number of individual items are treated under "classes" of related articles. There are about 60 such classes; for example, "Class 5—Flags and Bunting," "Class 58—Railway, Dock and Fire-Fighting Apparatus."

The identification of the individual item consists first of the class; for example, bottles are under class 57, therefore to designate bottles the first key number would be 57. This is followed by the initial letter of the article, in this case "B." Then would follow the number assigned to the article itself, supplemented by subordinate numbers or letters as the elaboration by types or sizes requires. Thus, one ounce glass stoppered bottles of a certain description, in lots of one dozen would be "57-B-7530-(a)" in gross lots it would be "57-B-7530-(b)."

Of course the principal offices of the Procurement Division are in Washington, but in addition to the seven story building which takes up an entire city square in the Nation's Capital, the Division maintains field offices in 43 States, usually in the State Capital.

Approximately 600 employees are regularly employed in Washington, and these are all Civil Service employees. The large majority of this number have been in the Procurement Division for long periods of time.

The Division does practically all the purchasing for every Government agency with the exception of the Department of Agriculture, Interior Department, the War Department and the Navy.

The War Department maintains its own extensive purchasing department in the Quartermaster General's office, and the Navy maintains the Bureau of Accounts and Supplies as its purchasing arm. The Defense Commission places defense contracts through the Army and Navy purchasing agencies, but obtains its office supplies from the Procurement Division.

While the Army and Navy handle the majority of

the defense contracts, the Procurement Division has let contracts for some of the strategic materials which are not native to the United States. Included in the materials of this nature purchased by the Procurement Division are Chrome, Tungsten, Quinine, Quartz and Manganese. However, now Manganese and Tin are being purchased by the Reconstruction Finance Corporation.

The Division is also the coordinating agency which handles purchases for institutions for the blind throughout the United States. In line with this assign-

FORTY MOST IMPORTANT MATERIALS PURCHASED BY PROCUREMENT DIVISION, TREASURY DEPARTMENT

Abrasives	Hospital, Surgical & Laboratory Apparatus
Acids	Instruments of Precision
Athletic Equipment	Lumber
Agricultural Implements	Machine Tools
Batteries	Metal Bars, Plates, Sheets
Binders	Office Machines
Bathroom & Toilet Fixtures	Office Furniture
Cement	Photographic Equipment
Chemicals	Pharmaceuticals
Drugs	Pipe
Dry Goods	Pipe Fittings
Drayage Service	Paint
Electric Lamps	Refrigerators
Electric Cable & Wire	Stationery
Electric Apparatus	Tires & Tubes
Electric Service	Tobacco
Food	Textiles
Gas Service	Table Ware
Hand Tools	Telephone Service
Hardware	Typewriters

ment, the Division is currently charged with the duty of obtaining 1,700,000 pillow cases for the Army from agencies for blind persons. The pillow cases, for conscription trainees, must be purchased from these institutions, if it is possible for them to produce this huge order.

Another emergency assignment for the Division is the purchasing of food and supplies for the American Red Cross in its program for European relief.

However, not all of the Procurement Division functions relate to purchasing. The Division is also the sales agency for the Government, and puts up for sale to the public, on bids, all materials discarded by Government agencies.

An offshoot of this activity is the extensive repair service extended by Procurement. Much of the dis-

carded Government equipment was found to be repairable, and a furniture repair shop, a typewriter repair shop and an automobile and truck repair shop were set up.

Another activity in which the Procurement Division engages is the operation of a coal yard, which handles fuel for all the Government departments. As an example of the huge purchasing power of the Government in one field — Procurement buys \$18,000,000 worth of fuel (gas, coal and oil) during a year.

Other large purchases are: automobiles, approximately four and a half million dollars; tires and tubes, nearly four million dollars, and nine million dollars worth of office machines.

All in all, the United States Government as a purchaser is the largest in the world.

Right: Shipments must come up to specifications, and undergoes various inspections.



Top Right: Procurement employee examines requisition to see if it is accurately set forth.



Right: Chemical analysis further probes the shipments.



Bottom Right: A Government department sends in a requisition for merchandise by the Procurement Division. The requisition is marked with time of arrival.



Associate Membership Plan is Proposed for N.A.P.A.

THE National Association of Purchasing Agents will be called upon to vote at the 1941 convention in Chicago, upon a proposal to amend the national constitution and by-laws, creating a new type of membership open to assistants and junior executives in purchasing departments. The proposal was made at a District Council meeting of District No. 6 last May. The Executive Committee of N.A.P.A. has referred it to the local associations for action.

As a basis for such action, with a complete understanding of the proposal and full discussion, prior to the Chicago convention, a letter outlining the proposal has been sent to each local association by Donald G. Clark and W. E. Bittner of the Pittsburgh Association, proponents of the plan. The letter, which presents the point of view of the signers, states in part:

The proposed amendments are intended to create a new type of membership in the National Association, to be known as "Associate Membership." This class of membership would be open to those members of a Purchasing Department, which already has representation in the Association, who otherwise satisfy the eligibility requirements of the National Association and the Local Association.

The purpose behind the amendment is primarily to build up the Association in a quarter where at the present time it is not fully recognized and among individuals upon whom the Association must, within the course of a few years, depend for support. We refer, of course, to the junior members of the Purchasing Department, not clerks but Buyers and Junior Buyers.

It is more or less obvious that the functions of the N.A.P.A., and particularly the educational functions, have a great field for service amongst members of the Buying Profession who are starting their careers in buying. These are the people to whom it is most important that the ethical concepts and the information and the inspiration of the Association should be directed. They are still in the formative stage, are receptive to new ideas, and upon the type of association and education they receive now depends, to a large degree, what sort of Buyers they will be when they themselves head Purchasing Departments instead of functioning as assistants or juniors.



Unfortunately, the membership of our Association is almost entirely among those Buyers of position and experience who are the chiefs of Purchasing Departments. Obviously, the Association can do a great deal for them, and we believe it is doing an outstanding job. Nevertheless, it is true that these Purchasing Agents, like you and like ourselves, have more or less determined our policies and our procedures, and are not particularly susceptible to change.

The membership we now have is, we believe, 100% loyal to the N.A.P.A. Is there, however, any such loyalty or interest in the Association on the part of these younger members of Purchasing Departments who at the present time are not taken into membership, and who get the benefits of the Association, if at all, second-handed, or by the courtesy of some one who is a member? It appeals to us as not only desirable but vital from the point of view of the Association, that these juniors be brought into direct contact and affiliation with the N.A.P.A. and with the Local Association.

Briefly, the arguments in favor of associate membership may be resolved into two statements:

1. If the N.A.P.A. is to perform its greatest service to the Profession of Purchasing, it must direct its attention, and its educational efforts, to the younger group who are going to be the Purchasing Agents of tomorrow.
2. If the Association is going to endure and prosper, it must engage the attention not only of those who are now leaders in purchasing work, but of those who are going to be the leaders of tomorrow.

* * * * *

In summary, we sincerely believe that this is one of the most progressive steps which has been proposed for our Association to take. The amendments have been worded as carefully as possible. They have placed a limitation of five years upon the period for which Associate Membership may be held. This is on the theory that within five years an Associate Member should either be so thoroughly sold on the Association as to make whatever sacrifice is necessary to continue as an active member, or he would be so disinterested as to be of no value in any capacity of membership.

The proposal has been limited to cases where the Local Association already has at least one active member of the purchasing staff of any company which can have Associate Members. We believe that no company should be satisfied with Associate Membership alone, but should support the Association to the extent of at least one active member.

There is nothing mandatory about the proposed amendments to the national constitution and by-laws. Local Associations may or may not open their membership rules to Associate Membership, as they see fit. We hope, of course, that every Local Association will seize upon what we believe is a genuine opportunity for greater service and for progress.

One last word of caution. Do not confuse the proposed Associate Membership with the so-called Associate Membership which now exists in a few Associations, and which is really a type of honorary membership offered to individuals not strictly eligible as buyers, but who for sentimental or other reasons have maintained their affiliation with the Local Association. If the proposed amendments are passed, this form of membership will have to be eliminated, or given some other name. Our only caution here is to the effect that you have no confusion in your mind between it and a genuine effort at spreading the service of the Association to a class of buyers who are strictly eligible, and for whom we can do more than for any other group.

D. G. CLARK
W. E. BITTNER

PURCHASING

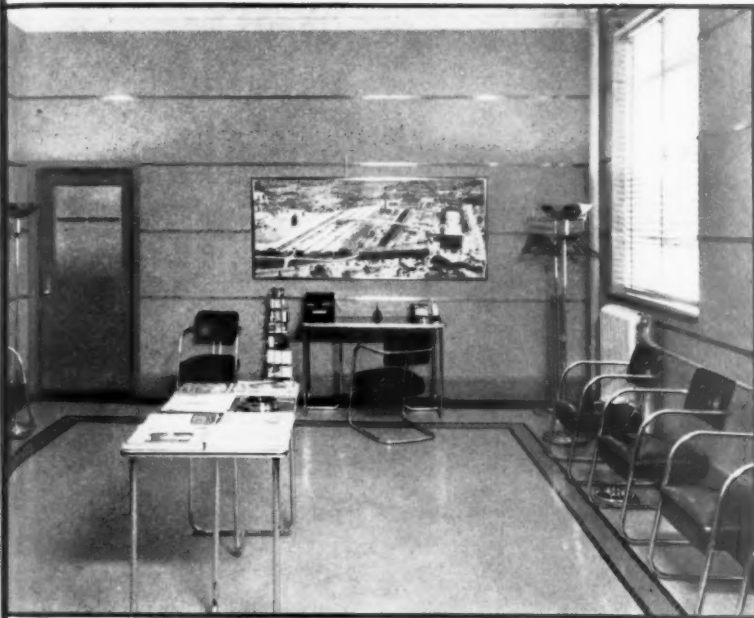
Visitors enter the attractive and comfortable reception room by the door shown at the right, and register their call at the receptionist's desk.

SALESMEN ARE WELCOME AT

WESTINGHOUSE



The entrance to the Purchasing Department offices is at the far end of the room. Shown in this photograph are two of the practical conveniences provided for visiting salesmen—writing materials and a rack of current timetables.



SALESMEN calling at the East Springfield, Mass., plant of the Westinghouse Electric & Manufacturing Company are handed an attractive little booklet entitled "For Visiting Salesmen." The immediate effect of this personalized welcome is to establish a cordial relationship between buyer and seller, even in advance of the interview, which forms a sound and lasting basis for mutual understanding and cooperation. For this booklet, which can be read from cover to cover in five or six minutes of waiting time (but which is "meaty" enough to invite second reading and further study) is more than a gracious gesture or the perfunctory restatement of a conventional greeting. It calls attention to a half dozen practical personal services available to the visitor, designed to help him make the most effective use of his time and to make his visit easier and more pleasant, however brief it may be. The words are backed up with service.

And this is only one of three principal aims which are accomplished by this simple means. The statement of policy assures observance of the proper sales ap-

proach, measurably aiding the work of the buyers and the general conduct of the purchasing department—registration of all calls, first contact in every case to be with the purchasing staff, appointments with technical or production executives to be made through the buyer, sales presentations to be held within reasonably brief limits and during the established interviewing hours.

Thirdly, there is a "Shopping List" which enumerates more than a hundred and fifty of the principal items purchased for use at this plant. The variety shown in this list has frequently suggested to the salesman a more complete and pertinent presentation of his line, and has in turn revealed sources of supply for the buyer which might otherwise have been overlooked.

Put all this together, and the result is a very effective, though unpretentious, factor in building desirable commercial relations. Attractive, small (3 x 5 inches), and conveniently provided with a couple of blank pages for notes, the booklet is generally slipped into the salesman's pocket and keeps on working long after the interview itself has been concluded.

The text of this message is as follows:

"All visiting salesmen are due the courtesy of an interview. If, however, circumstances make it impossible to see you on any one visit, remember that it is not done intentionally since it is our policy to interview all visitors as soon after arrival as is practicable. Nevertheless, our inability to see a visitor, or undue waiting, is sometimes unavoidable.

"Each visitor is asked to register upon arrival so that a record may be made of the call. The receptionist will then contact the buyer who handles your line and, if the buyer is busy, apprise you of the approximate length of time before you can be interviewed.

"Should you desire to talk with an engineer or person other than the buyer, you are asked to have the receptionist first contact a member of the purchasing staff. Then, if it seems advisable, she will obtain an interview with the person desired.

"Arrangements are available for you to send telegrams

or use the telephone if you so desire. Telephone directories of all large cities hereabout and the Springfield telephone and street directories are in the Purchasing Department and may be consulted upon request. Writing materials are provided in the Reception Room and on the writing table will be found railroad and airline timetables as well as a road map of New England. Wash rooms are located in the main hall, just to the right and left opposite the Reception Room door.

"The receptionist has a schedule of transportation service between the plant and the downtown area, which information she will be glad to furnish, or, if desired, she will call a taxi.

"If you have friends waiting for you outside, you are invited to have them use our Reception Room or arrangements may be made to have them visit our Merchandise Display Room. If you find yourself at the plant during the lunch hour, you may avail yourself of our comfortable, air conditioned cafeteria.

"It is our intention to allow every salesman ample time to present his case. However, brevity is desirable in order that you may be free to make other calls and to allow us to complete our daily work. Visiting hours are from 9:30 A.M. to 4:00 P.M.

"If your line is found not to be of interest at this time, remember that perhaps at some future period we may be in the market for what you have to offer. You should feel free, therefore, to present your case again on a later visit.

"In the Reception Room will be found a history of Westinghouse in Springfield, indicating the growth of this plant through the years. From a small beginning, the East Springfield Works has become one of the important links in the Westinghouse chain. Indicative of the many varied products which we are called upon to purchase is the following list.

"ON OUR SHOPPING LIST"

Abrasives	First Aid Supplies	Plating and
Acids	Flux	Polishing Supplies
Alloys	Foundry Supplies	Plumbing and
Aluminum	Furniture	Heating Supplies
Ammonia		Printing
Anodes	Cages	Pulleys
Asbestos	Gases	Putty
Asphalt	Gaskets	
	Gasoline	Recorders
Bags (all kinds)		Refrigerants
Batteries	Gloves	Refrigeration fittings
Bearings	Glue	Rheostats
Belts	Greases	Rivets (all kinds)
Bolts (all kinds)	Grinding Compound	Rubber
Borax		Safety Supplies
Bottles	Hinges	Salts
Boxes	Hooks	Sand
Brass	Hose (air, water)	Scales
Bricks		Screws (all kinds)
Bronze	Ingot	Screw Machine Parts
Brooms	Instruments	Shocks
Brushes	Insulation	Shovels
Bufs	Iron	Signs
Bushings	Iron (pig)	Silver
		Soap
Cabinets	Japan	Soda
Cables	Jugs	Solder
Cans	Jute	Solvent
Carbonates		Springs
Cartons	Kerosene	Steel (all kinds)
Casters	Keys	Sulphates
Castings (die and sand)	Knobs	Switches
Celluloid	Laboratory Supplies	
Cement	Lacquers	Tacks
Chemicals	Lead	Tallow
Chlorides	Lime	Tanks
Cleaning Compounds	Linoleum	Tape (all kinds)
Cloth	Locks	Thermometers
Coal	Lockers	Thermostats
Coke	Lubricants	Thinner
Compounds	Lumber	Thread
Condensers		Tires
Conduit	Machine Tools	Tools, machine
Conveyors	Machines, Office	Tools, small
Copper	Meters	Trucks
Cotton	Monel Metal	Tubing (all kinds)
Crates	Mops	Twine
Cyanides	Moulded Parts	
		Uniforms
Dials	Nails	
Diamonds	Nameplates	Varnish
Disinfectant	Nuts (all kinds)	
Drafting Supplies		Washers (all kinds)
Drop Forgings	Office Supplies	Wax
	Oils (all kinds)	Welding Supplies
Electrical Supplies	Ovens	Wheels, grinding,
Enamel	Oxides	wire
Eyelets		Wipers
Excelsior	Packing Materials	Wire (all kinds)
	Paint	Wire Goods
Felt	Panels	
Fibre	Paper (all kinds)	Yarn
Filters	Paste, sealing	
Fire Equipment	Pins	Zinc

for Visiting Salesmen

In this booklet, Westinghouse expresses its welcome to the visiting salesman and helps to make his call both pleasant and profitable.



Perhaps it will suggest something which you handle but which you have hesitated to bring to our attention because you were under the impression that we were not users of that particular item.

"The facilities provided and described herein are for your convenience and we hope that you will make use of them. Suggestions are solicited for improving our relations with our visiting salesmen. Write your suggestions on this, or any other subject, on a slip of paper and hand it to the receptionist. It will receive careful attention.

"Take this booklet with you. It will serve as a souvenir and as a reminder."

The "Westinghouse in Springfield" booklet referred to in the third from last paragraph above also serves the dual purpose of welcoming the visitor, and giving him in convenient form a summary of plant facilities and operations. Interesting for its own sake, it is particularly useful in clarifying and coordinating the information and impressions gained from a tour of plant departments. While it is necessarily very general in its treatment, the brief description of manufacturing processes, flow of materials, quality control, and variety of products, effectively supplements the "Shopping List" in the smaller booklet and helps the salesman to do an intelligent job of serving this company.

The booklet contains a panoramic view of the plant, a diagram of the plant layout, and a page devoted to the employee clubs promoted by the Industrial Relations Department and the comfortable modern auditorium provided for their use. The text of the principal section is as follows:

"It is a pleasure to welcome you to our plant. We hope your visit will be both pleasant and informative.

"The origin of Westinghouse in Springfield dates back to 1915, when the Parent Company at East Pittsburgh made a survey of many industrial centers to determine the most desirable location in which to establish a new plant necessary in its expanding program.

"From that date on, Westinghouse has advanced step by step in the City of Springfield until at present it is one of the

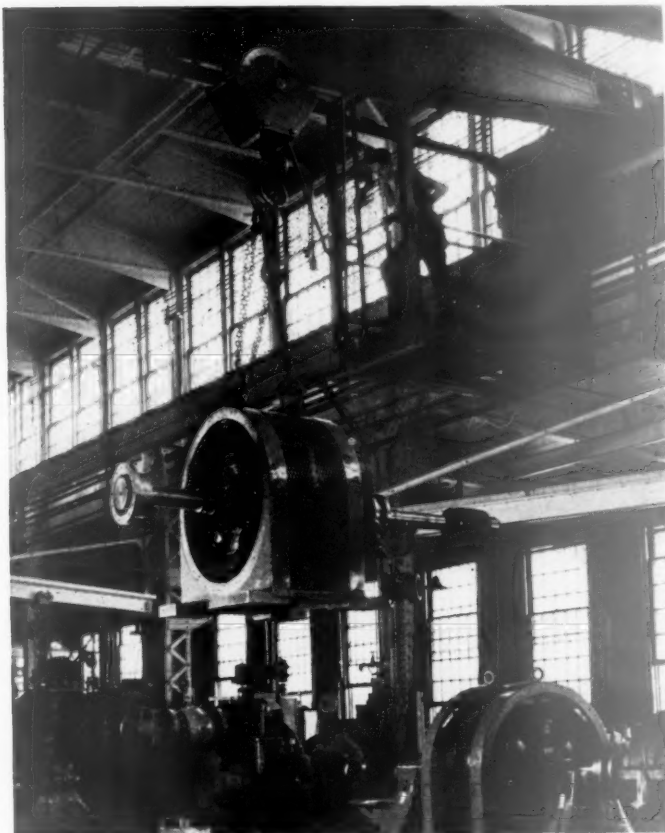
Continued on page 71

ORGANIZING THE PLANT'S LUBRICATION

By CHARLES H. BROMLEY

The Purchasing Agent may be a key man in setting up a proper lubrication policy for his company

"Tops" in machine lubrication is the modern steam turbine. Such equipment is so well adapted to correct lubrication that in many instances the same charge of oil is used over and over again for four or five years. Wear of the bearings is hardly measurable even after many years of service. Through the use of oxidation inhibitors, the oil industry greatly increases the life of turbine oil. Continuous purification contributes to longevity and safety.



EXPERIENCE shows that all the many considerations relevant to lubrication, except, of course, reciprocity, are best met if responsibility is centralized. In most industries it is the practice to focus this responsibility in the plant engineer or whoever has such duties; in nearly all it can be made to be the practice without confusion. In others, textile for example, real reform would first be necessary, for it is the "law" of long-standing tradition that the mechanical department shall keep hands-off beyond the lineshaft and the motor-drive. Despite the fact that where there is full cooperation between the mechanical department and the production personnel, no harm is done, it is obvious that lubrication is an engineering function and that management is best served when engineers are responsible.

If at all possible, avoid putting this responsibility into the hands of a cadet engineer. This has been tried in many plants and has almost invariably failed, naturally, because of the young man's inexperience. Where the company's capital investment in machines is great enough, it will pay to employ a lubrication engineer of long experience. Avoid, too, assigning this job to the plant chemist; this has also been tried again and again, only to prove it a management mistake. The chemist serves well on checks and analyses of lubricants, but is

not necessarily competent in their application. If the capital investment in machines does not warrant employing a lubrication engineer management would do well to focus the job in the equipment engineer or the maintenance engineer. Should a lubrication engineer be used, he should "head-up" directly to the plant engineer.

Knowledge Is Essential

Obviously, a lubrication engineer should know lubricants. Over a wide cross-section of industry, one weakness in the lubrication responsibility set-up is common and, on the whole, serious. It is that too many of these men with lubrication engineer's duties lack sufficient knowledge of lubricants, their chemistry and limitations. Of course, the weakness is to be expected; it is in the nature of the whole situation. Its origin lies in a misconception which introduces error into the first step in organizing for better lubrication. This misconception is that the men chosen must possess, as a prime requisite, knowledge of and experience in *production* in the particular industry in question. It should be the other way around—he should be selected because he knows *lubricants and lubrication*, and without too much regard for how much experience in the particular production he has had.



Most textile mills are "oil-eaters" and the industry as a whole is still one of the most poorly lubricated, though conditions are improving through the intelligent use of devices for lubricant application, many of which save their cost in oil within a few months.

To put production experience before lubrication experience is somewhat as though you were to select a cook for the duties of dietician or choose a machinist for a metallurgist's job. To realize this better, recall that however complicated the machine or what it does or makes, it is, from a mechanical and from a lubrication standpoint, much like any other machine; all machines are aggregates or assemblies of a relatively few machine elements—the wheel, lever, bearing, guide, screw, gear, cam, etc. The primary purpose of lubrication is to minimize friction of the rubbing surfaces of these few elements.

If a production man is to be chosen to supervise lubrication, think well beforehand how you are to provide for his education in lubrication, for before he can return anything worth-while on his cost he simply must know what to do to effect a return. Remember too that, as yet, the colleges and technical schools teach little or nothing about lubrication despite the vital role it plays. Have in mind that lubrication is behavior in physical chemistry, that it is, as applied to machine parts, largely mechanical and nearly always, when most correct, in the category of hydrodynamics. The order of intelligence in the man must be such that he can understand these and correlate them with all the other varied conditions of service which impinge for good and bad upon practical lubrication. Even if you find such a man in the production department, it is a thousand-to-one he will have no knowledge whatever of lubricants, their chemistry and their limitations. For this serious handicap you will pay and pay and pay.

"But," you ask, "cannot we rely upon the oil companies to fill this gap?" Yes, you can; but it will prove unsatisfactory for the old, old human reason that he who has the power of veto has all the power; your man will have the power to accept and reject the advices of your sellers' engineers. So in the long run it generally works out that the seller must aim to please your man, even if he doesn't know what it's all about. And you pay the bill.

Setting Up a Lubrication File

Next to a competent man, nothing is of such far-reaching importance to the plant's lubrication as an intelligently conducted lubrication engineering file. In lubrication, as in everything else, how well it is done depends largely upon the accuracy and completeness

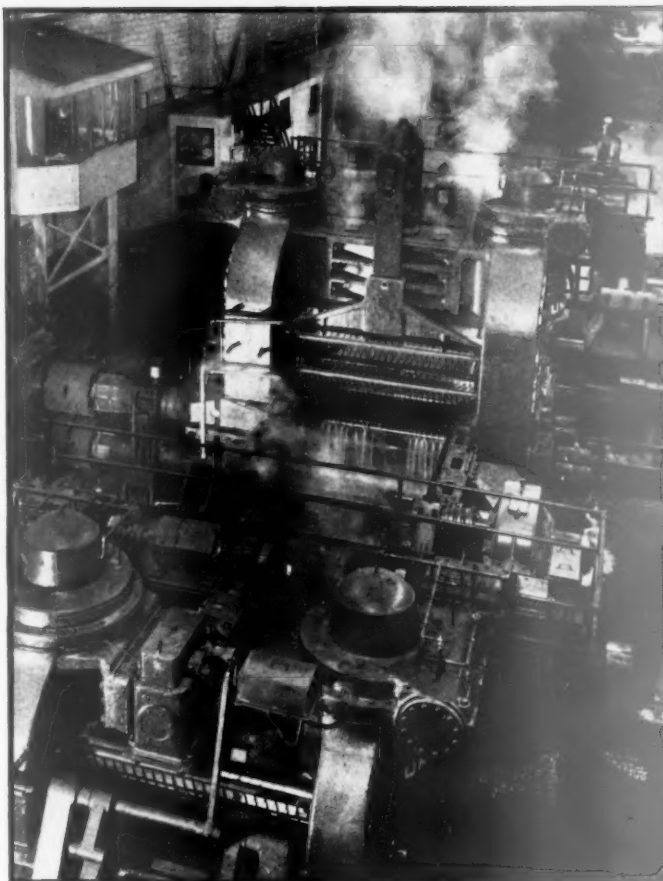
10 REASONS for organizing plant lubrication

- 1—So machines will function at their best.
- 2—So the capital investment in machines may return profit over the longest possible time.
- 3—To minimize expense for machine maintenance and replacements.
- 4—To promote uninterrupted machine output through minimum down time.
- 5—To make sure provision is made, in time, for the correct lubrication of machines about to be purchased.
- 6—To lower power consumption by minimizing avoidable friction.
- 7—Because machine design may be improved through application to it of the methods of lubrication best suited.
- 8—To get maximum lubrication from oils and greases purchased.
- 9—To make all hands lubrication conscious.
- 10—To facilitate the purchase of lubricants by applying specialized intelligence to one or more of the following:
 - (a)—Selection of the most suitable lubricant for each particular machine or service—most suitable functionally and economically.
 - (b)—To most smoothly make those purchases determined chiefly by reciprocity reasons.
 - (c)—To accumulate and use information upon which to most intelligently purchase devices for the application of lubricants to their respective services.
 - (d)—Creation of a technical focal point to which the Purchasing Agent may with confidence turn for assistance instead of the now common practice of going through several persons and not then feeling sure of himself because these separate opinions and advices have not been reduced to a "common denominator."

The modern steel mill is one of the best lubricated in all industry, this being not the least of the factors contributing to the greatly increased capacity of the modern mill as compared to the old. Steel, which used to be one of the poorest lubricated industries, makes extensive use of the lubrication engineer.

of the information upon which action is based. Usually one or two four-drawer filing cabinets holding sheets 8½ x 11 in. (letter-head size) will conveniently house all the desired information except bound volumes, for which a bookcase will be used, of course. This file should contain, as major information, the following:

- Oil and grease specifications, general.
- Oil and grease specifications as used by the plant.
- Master sheets of the plant's lubrication survey, by floors or Departments.
- Copies of the lubricant contracts, or lists giving the equivalent information.
- Bearing design data and blueprints as related specifically to the plant.
- Lubrication test data (Tests made in or for the plant).
- Lubricant application methods data and drawings as they relate to the plant. (Separate oils from greases.)
- Articles and data from the technical press, by subject.
- Papers from American and Foreign Engineering Societies.
- Data from U. S. Bureau of Standards, by subject.
- Data from British Library of Information, by subject.
- Oil storage, measuring and distribution methods.
- Bearings metals and alloys.
- Cutting oils and coolants, properties, tests, remarks.
- Bearing design data, by subjects, as: plain-journal, ball roller, sleeve, thrust, collar oiled, ring-oiled.
- Film lubrication. (Under this heading file, by subject, those very valuable test data relating to oil-film behavior and available chiefly from the technical press and engineering society papers.)
- Gear lubrication, by subject, as: spur, worm, herringbone, hypoid.
- Die lubrication, by subject, as: drawing, forming, stamping, extrusion.
- Slushing oils and compounds, uses and tests.
- Automotive lubrication. (File separate from industrial.)
- Power plant lubrication, by subject, as: steam engines, diesels, steam turbines, air compressors both stationary and portable.
- Cost Data. (Under this heading arrange and file data in the most practicable way as dictated by the needs of the plant.) The reason for this seemingly obvious statement is that cost data, frequently and intelligently used, will prove exceedingly valuable not alone in lowering lubrication costs, but in improving lubrication and all that is tied in with it, such as contracts, prices, reciprocity situations, specifications, approval of requisitions for lubricant-application-devices that in most cases have great influence in reducing costs; such data is invaluable when preparing reports on the stewardship of the lubrication engineer.
- Route new information to the file: The plant engineer should issue instructions to all his personnel to route to the lubrication engineer all published items on lubrication from the technical and trade press, engineering societies, oil companies and other sources.
- Practices in similar plants: Information about lubrication practices in plants similar to one's own always is valuable and should be available from the lubrication file. If one's plant uses considerable cutting oil it will be especially valuable to accumulate information about performances of such oils in other plants. Enter the data in tabular form stating S.A.E. number of the steel or alloy, nature of the work (threading, turning, cut-off, knurling, tapping, etc.), name of machine on which work is done, cutting tool material, pieces done between sharpening or renewing cutting tool, speed of the cut or number of pieces cut per hour, kind and specification of the oil, propor-



tion water-to-oil if a soluble oil, method of application of the cutting oil. Have plenty of space available for remarks.

Securing Cooperation

Most of the difficulties confronting the lubrication engineer during the first year do not arise out of machines nor lubricants but out of the minds of the plant personnel with whom he deals. Often there is some reluctance to cooperate, sometimes there is hostility because this or that man's ego has suffered injury; he (or they) know all there is to know about lubrication and it is nothing but a waste of money to bring somebody else in to look after it.

Weekly meetings of men of the mechanical department and production overseas and foremen, held until the plant's lubrication is organized, tend to quicken cooperation. If the plant employs machine designers these men should, in addition to the weekly gatherings, meet separately with the lubrication engineer, and the first few such meetings should, where possible, be luncheon meetings.

Perhaps no one can more intelligently initiate organizing the plant's lubrication than the Purchasing Agent. Always he is a direct link between the plant's operations, its consumption of goods, the funds for them, and the financial and administrative executives. Putting a lubrication engineer on the payroll usually requires executive action. The Purchasing Agent has the facts necessary to determine for or against putting one on or at least organizing to get higher return for the money spent in the many channels affected by correct—and incorrect—lubrication.

Unfortunately it is a truth that not the least of lubrication ills to which industry is heir come through

Continued on page 94



GETTING FOR NATIONAL

By M. C. RIDER

Purchasing Agent
Willson Products, Inc.

"WE LOOK BEFORE AND AFTER
AND PINE FOR WHAT IS NOT."

LAST May we received from the United States Government an invitation to bid on an educational order for a quantity of a certain item which for obvious reasons must remain nameless here. We say obvious because all of the printed instructions, blue prints and other data accompanying the invitation were marked "Restricted", qualified by a statement like this: "*This drawing is for use only in connection with procurement by the United States Government and shall not be used nor reproduced either wholly or in part for any other purpose except when specifically authorized by the Chief of (whatever department might have issued them)*".

We have made a pretty bad beginning by reproducing that much, but since it does not disclose anything, we will take the chance. As we do not want to expose ourselves to reprimand nor in any way "to give aid or comfort to the enemy", be he real or assumed, you are asked to overlook or rather not to be surprised should you come upon incongruities in connection with references to materials, machines, operations, etc. We are primarily interested in stating the problems that confronted us in the attempt to gather data upon which the bid was based and in their solutions. Since it is probable that some of you who may chance to read this will be called upon, as we

were, it is hoped you may find at least a few helpful hints in this account of our trials and tribulations.

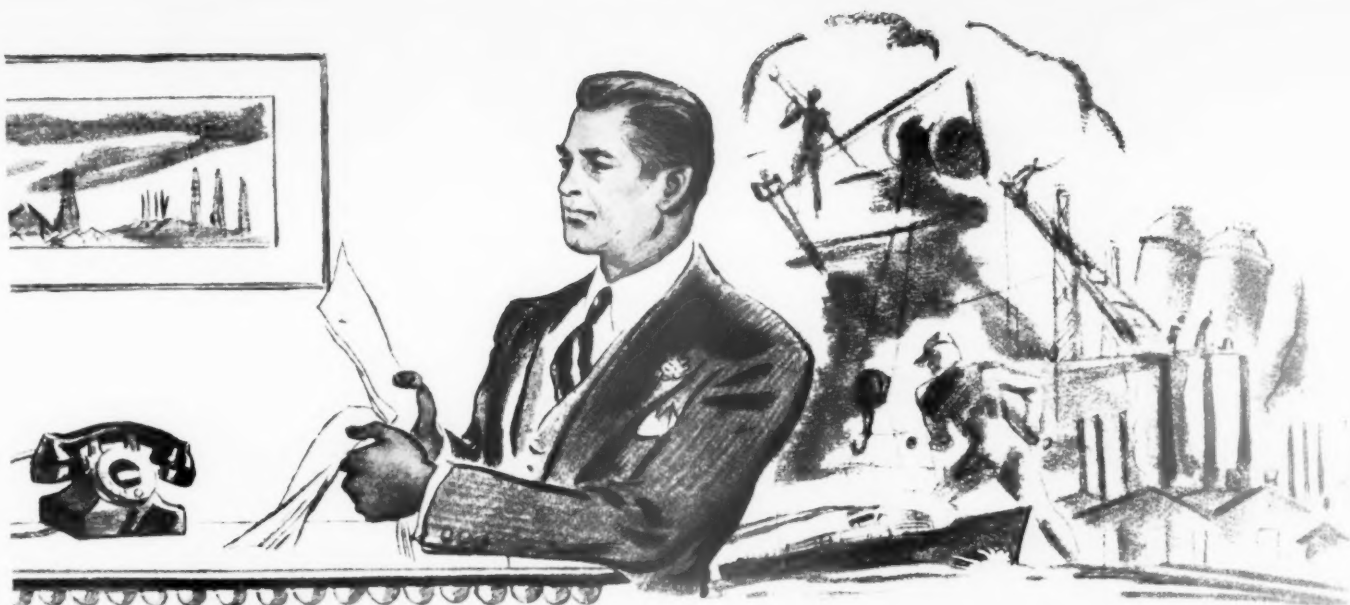
The first shock to the Purchasing Department came when we learned that the invitation had been floating around various departments for a couple of weeks before we knew anything about it. We had, therefore, only about ten days in which to complete our share of the job. This consisted of finding sources of supply, with alternates, for all machines, tools, dies, materials and what have you, needed for the production of the items we were to bid upon.

It was not simply a problem of getting raw materials to run through our plant. Under the terms of the bid, we were required, in the event of inadequate floor

space, to build, buy or rent plant facilities; to figure on the purchase and installation of new mechanical equipment and to set up what was to be, as far as possible, a self contained unit or plant working from raw materials. The potential output of the plant was to be 5,000 units per day of three eight hour shifts. Storage space must be available for 75,000 units and for fifteen days' supply of raw materials. The successful bidder, having completed production facilities, was to make 10,000 units, ship them to destination, lock the doors of the plant and keep it ready for production—wait for whatever might happen next.

Urgent things should be done
slowly.





EDUCATED

DEFENSE PROCUREMENT

Here's how one Purchasing Department organized for handling bids on National Defense contracts. Their experience may save you a lot of headaches under similar circumstances.

This briefly was the problem, which will be enlarged upon as we progress. I believe the lawyers have a phrase for this—something to the effect “and which more fully and at large shall appear”. If Professor Lewis should ever be hard up for a nice problem for his class in Industrial Procurement, here is grist for his mill. No element is missing. The only advantage the students would have over us would be the fact that they would not have to keep the regular daily functions of the Purchasing Department running uninterruptedly while this other job was being done and which, as Kipling has said, is another story.

To make a long story short, we did gather our information, to the tune of about forty-odd dollars for telephone calls and some twenty-odd more for telegrams, to say nothing of the hours lost for weeks afterwards spent in explaining to salesmen that we had been asking for information only, although all of our inquiries had clearly stated our purpose. The bid went in. We got the education. Someone else got the order.

Finding a Better Way

In our department, our first urgent reaction was to dump into the waste basket, to the accompaniment of a Bronx cheer, the vast accumulation of data we had gathered so laboriously. But, I had recently fin-

ished reading one of Lin Yutang's books in which he had warned that “urgent things should be done slowly”.

The data was or were (according to whether or not you are a purist) bundled up and put carefully away. Then we sat down, my assistant and I, to inventory what we had learned. To us it seemed that the first thing that should have been done was to have placed in the hands of a responsible person the ultimate job of coordinating the data from each department concerned, placing it before the general manager in such form that he could issue the bid. This same coordinator should have the authority to delegate to each of the several departments—purchasing, cost, production, etc., their respective responsibilities and duties leading up to the final tabulation of data.

Next and by no means least was the element of time.

That we could not make. We could lose it and did. We could spend it by working overtime and did. We came to the conclusion that the best thing to do was to save it by seeing that all concerned were advised promptly in the event of another “invitation” and all starting from scratch. We talked a lot more, made a few “cursey” remarks and called it a day.

And now you will probably ask, “What have you told us? Simply that you were asked to bid, did so, and nothing happened.” That's right. You're wrong. We have given

Don't remove the appendix of a government bid.



you, sketchily to be sure, what we believe to be a good example of the wrong way to go about this job. It happened to us and while, of course, it could never happen to you because you do not do things that way, it at least serves as a good prelude to what follows. What does follow is not presented as an ideal procedure or even as a theoretically correct one. It is the method best suited to our type and size of organization, which is not different from many others, and therefore it may be of help to you on that very busy day when everything is going wrong and which is climaxed when a sheaf of blue prints and reams of forms are dumped into your lap with the brief request to "get on with it".

Another Invitation

"Lightning never strikes twice in the same place"—sez you. It did—on August 2nd in the form of "Invitation to Bid C-Wsc-Oe-4-13." The management said that we were going after this one. The blue prints and other things had not arrived but were on the way. They came the next day; Appendix A. B. and C.

It should be remarked here that the appendix of a Government bid is not the useless internal appendage common to *homo sapiens*, removed under anaesthetic after making itself known by violent abdominal pains. Bids have at least one appendix. This one had three—there, there and there—like the three trees in the song. They give you a headache, but you cannot do without them because they are the life of the party. Do not turn up your nose at them, as you are going to live with them in almost marital intimacy for the next three weeks.

Appendix A.

1. Prints—blue—sets—one.
2. Materials—bill of.

(There were 47 items.)

3. Specifications

Federal, U. S. Army and Chemical Warfare Service, covering all materials. Since the use of specifications in procurement implies the use of tests, they too were there in great detail.

Appendix B.

Eight pages of it, typewritten, single space. This covered general instructions concerning the product to be manufactured and any after-thoughts omitted from the rest of the documents.

Appendix C.

From this we gathered that the Government as well as the bidders had learned something from their previous experience as this was a new appendix containing:—

- A. Machines—list—one (111 items)
- B. Tools—list—one (16 items) (62 dies)
- C. Equipment—laboratory.
- D. Sketch—laboratory layout, ideal, not essential to follow exactly but for guidance.

E. Plans—floor—layout for proposed plant with location of machines indicated by individual numbers assigned to items in A above.

F. Operations 1. List for production of parts.

Operations 2. List for assembly of parts.

each complete with machines and tools necessary for each job and identified by numbers as noted in E above.

To all intent and purpose, this was a duplicate of the previous invitation, with just enough changes to make most of our earlier data useless. Much of it we could and did use so it was taken out of retirement, dusted off and used as the basis for our own departmental procedure.

Study With Care

The invitation to bid itself is the thing that you will want to read as carefully as your rich uncle's will. It contains many surprises and items of the utmost importance tucked away in long paragraphs that look harmless. There is no need to go into detail here regarding this because it is probable the one you may get will be entirely different. We do say, however, if and when you do get it, read it very, very carefully and make copious notes.

We started with Appendix C because this included the machines and tools referred to as well as 62 dies, 2 jigs and one mold for injection molding. It was pleasing to note that with one or two exceptions, the maker's name was given after that of the machine. Take warning and do not lean too heavily upon that reed. It will bend if you do, because when you write to the R. U. Ignorance Company for a price on six heavy duty presses as listed in Appendix C of invitation to bid #OC-WSC-OE-4, it is probable that you will receive a letter saying that they haven't seen the bid and please send a copy, upon receipt of which they will be glad to quote and with kind regards they remain very truly yours. But, we are getting ahead of our story.

We were called into the General Manager's office and told, "Here it is, boys, and let's see if we cannot do a better job than last time. The factory closes next week so you have plenty of time—three weeks out of a whole month." (Just a simple little problem in procurement).

To Bill Seidel, my assistant, he gave the job of coordinator, which was exactly what we wanted since it insured our department being kept in close touch with all that went on. This factory closing was a two edged sword, however. While it meant that we would not be disturbed by internal phone calls and routine work, it meant that many of the individuals we would have to consult would be away on vacation and we would have to go ahead on our own until they came back. I suppose that is one of the things they have Purchasing Agents for.

Read as carefully as your rich uncle's will.



We drew up a "Mother Hubbard".



Too much secrecy!



The first thing we did was to call a meeting of the heads of production, engineering, laboratory, cost and purchasing departments. Bill read aloud the whole collection of instructions and appendices while each of us made notes of the items falling within our respective jurisdictions. Blue prints and other papers were to be kept in our department subject to immediate access by the others. We were to have first call upon them because of the time required to break the list down and put out the drag net for quotations.

Bill took over the business of finding out whether we were to build, buy, or rent a plant, as well as the running of the purchasing department, while I used an adjacent office, going into absolute retreat for three weeks. Boy, that was a luxury! We drafted a stenographer for this job exclusively—another luxury. For prompt availability, we kept all records and correspondence in our retreat, using accordion pleated A to Z files.

The first day was spent in going over the several bills of materials and machines in appendices A and C. Each item was listed on a separate $8\frac{1}{2} \times 11$ sheet using the item as the heading, which also served as reference for filing. On each sheet was listed the blue print number of the part produced from the particular material and machine and the specification number, either CWS, U. S. A. or Federal, with which the material should comply.

The same procedure was followed with each machine, tool and part required, except that in place of the specification number we used the number identifying the location of the machine on the blue print of the factory layout and the operation with which the machine was to be employed, as well as the drawing number of the parts so produced.

All of these notations greatly simplified the linking together of drawings, materials and operations. There were, as we have said, 111 machines, 16 tools, 62 dies, 2 jigs, one conveyor and one mold for an injection molding machine.

Lining Up the Suppliers

We next listed on each of the above sheets not less than three, when possible, and usually four names and addresses of prospective suppliers. The sheets, which we considered work sheets, were then ready for action. As far as possible, we selected suppliers located within 36 hours haul, which gave us a very fruitful territory to work on, situated as we are in Eastern Pennsylvania.

First attention was given to the items that would, in all probability, take the most time to get—machines and tools. There were so many that we drew up a "Mother Hubbard" (covering everything in general and touching nothing in particular) form letter, referring to the invitation to bid number, the proper appendix reference and asked the supplier to bid upon such machines as he could supply under these references.

Perhaps we hoped for a little too much, trusting that the concerns would familiarize themselves with the references given them, but the results were not disappointing, and it is doubtful that the extra correspondence required to put them on the right track was any greater than had we written detailed letters to each company at the outset. Undoubtedly the latter procedure is preferable, but the element of time was constantly

staring us in the face and we had to get things moving quickly, trusting the opportunity to iron out rough spots would appear as the work progressed—as it did. The end seemed to justify the means.

The second day after the letters went out we began to receive letters, telegrams and telephone calls, according to the size and importance of the respective purchase in the eyes of the intending suppliers. Some knew exactly what we wanted. Others wanted copies of the appendix and so on. These people we referred to the nearest office of the Procurement Division of the CWS. Some of them got their information there and some did not, and to these latter we finally wrote detailed letters or phoned or wired, which in the majority of cases worked out satisfactorily. Incidentally, memoranda of all telephone conversations were attached to their respective work sheets and copies of all telegrams.

The work sheets were not filed in the A to Z folder until all information had been completed upon them. Incompleted sheets were laid out upon a large table, for two reasons. First, so that they would be instantly accessible in the event of phone calls and, secondly, so that no item could be lost sight of or buried. This gave us a clear picture of each day's progress as the surface of the table was cleared. It also told us daily where to start first, as the entire lot was gone over each morning and thinned out or followed up in the order of importance.

One machine house phoned in great consternation. When they went to the procurement office for information as instructed by us, they were told that the invitation was sent to a selected list of bidders and unless their name appeared on that list they could not have access to the blue prints and things. What were they to do next? We took them gently by the hand and explained that some one in the CWS procurement office was blocking his own game through a misunderstanding. All they had to do was to go back and explain that unless they were given the data necessary to enable them to quote us, we, a selected bidder, could not in turn quote the Government. They got what they wanted and so did we.

After the machine and tool inquiries were under way, we tackled the materials in the same way, making a work sheet for each as described and listing possible suppliers. Here, as with tools, we had to work closely with the engineering and production departments. Where metals and fabrics were involved, blank sizes had to be worked out and these in multiples of 10,000 translated into square yards or pounds. In the case of materials it was necessary to write detailed letters and, with but few exceptions, quotations were promptly received.

When all of the work sheets were complete, that is, with suppliers' names and quotations and all the essential information noted on them, we copied them on new sheets for reference by the cost and production departments and to act as the basis for the bill of materials we were required to submit with names of preferred and alternate suppliers. These were then filed in manila folders under general headings of Fabrics, Machines, Tools, Metals, and miscellaneous items. On the front of each folder was a list of the work sheets it contained.

Continued on page 96

He must have been up a higher stump than he thought.





"Send up another sample, Joe. He doesn't like the color of this one."

Silhouette STUDIES



J. HERBERT GASTON, City Purchasing Agent at Baltimore, is a native of Welaka, Florida, and came into his present work indirectly as a result of the Florida climate. When he was four years old, the heavy freeze of 1889 destroyed the citrus trees of that

locality, and a period of hard times was imminent. Under these circumstances, the family decided to move north and settled at Philadelphia, where his father found new opportunities in his profession of structural engineer. It was here that young Herb grew up and attended the public and mechanical training schools.

The Baltimore fire of 1904 had as its aftermath a period of intensive building activity and expansion. Herb's father was called to that city on construction assignments, and brought his family there to live at just about the time that Herb was ready to start his own career. It was an exceptional opportunity to grow with the new city and enjoy its advancement.

He naturally turned to the construction field, picked up some practical experience, and presently joined his father in superintending construction projects. One of his biggest jobs was on a New England Naval Hospital in 1913. When that was completed, he accepted a position as superintendent of plant maintenance with the Prudential Oil Company in Baltimore. Some time later the company found even greater use for his knowledge of materials and values by placing him in charge of purchases and stores, a position which he held until nine years ago.

In the fall of 1931, the City of Baltimore named Mr. Gaston Purchasing Agent for the municipality. The record of that office had not been particularly bright, and turnover on the job had been pretty high. But on the assurance that his four-year appointment was strictly non-political, and with a sound background of knowledge and experience, he gave up his industrial connection and undertook the new responsibility. The result has amply justified the choice and his decision. Reappointed in 1935 and again in 1939, he has not only set a new precedent in length of tenure, but his department has thoroughly established itself in the scheme of efficient local government and is one of those consulted whenever another city considers joining the growing list of municipalities where centralized purchasing is accepted as a basic principle of good administration in public affairs.

Herb Gaston joined the Baltimore Association in 1930, while he was still buying for the Prudential Company. He has continued that affiliation throughout his purchasing career, and has been a consistently interested and active member, holding office continuously since 1932, when he was elected Vice President. His service includes two terms as President, in 1934-1936, and the important post of National Director from 1936 up to the present time. He has done particularly ef-



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fective work on the membership and entertainment committees and in connection with the annual Manufacturers' Products Exhibit each October. In more than ten years, he has not missed a meeting of the Baltimore Association except for illness, and has a similar fine record of attendance at the District Council meetings and national conventions over that period.

For recreation, fishing holds first place, and a day on the Chesapeake or on the ocean is his favorite sport. Despite the fact that he has been driving automobiles since the two-cylinder days of 1906, he still considers it a diversion and spends many hours at the wheel. A few years ago he started collecting hotel stationery as a hobby, and has an interesting collection from all parts of the country. He is not given to public speaking, but has on several occasions addressed the selective vocational classes of the Y.M.C.A. on purchasing procedure. He is a member of the Episcopal Church and has two grown daughters.



LEVERETT A. ANDERSON, Purchasing Agent of the Louisville Water Company, is among the younger leaders of the profession, and has compiled an unusual record of accomplishment in a little more than six years of buying.

Left fatherless while still in grade school, he learned the lessons of industry and self-reliance at an early age.

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By dint of long hours after school and week-ends as a movie usher and soda clerk, and thanks to the devotion of an elder brother, he managed to get half way through his high school course at Hopkinsville, Kentucky, before it became necessary for him to join the ranks of the breadwinners at the age of sixteen.

There followed a period of miscellaneous jobs, including the finishing department of a chair factory in Evansville, Indiana, and the assistant managership of two Hopkinsville theaters. At twenty, he was in Louisville, breaking in as store manager for a chain grocery, learning merchandising methods and food-stuffs.

It was the latter specialized knowledge of foods, acquired in seven years of chain store operation, that opened the door to his first purchasing position, in the office of J. J. Beirne, City Buyer. This was in 1934. A natural aptitude for the work, supported by studious application, quickly brought promotion to the position of Assistant Buyer. Meanwhile the department was attracting favorable attention for its impressive record of efficiency and results. In 1936, young Anderson, not yet out of his twenties, was drafted by the Director of Purchases and Public Properties of the Commonwealth of Kentucky, and spent several weeks on leave of absence from the City Buyer's office to help reorganize the State Purchasing Department at Frankfort.

During the flood of 1937, when Mr. Beirne was stranded away from the office, Anderson spent five sleepless nights and days doing an emergency supply and evacuation job, assisted by a makeshift staff of two insurance men, an engineer, a marooned New York attorney, and Boy Scout volunteers. A personally inscribed note of appreciation from Neville Miller, Louisville's "Flood Mayor", appearing on a photograph of the sandbagged City Hall, surrounded and saturated by the angry flood waters, bears testimony to the high calibre of Anderson's services in that crisis.

Fifteen months ago he was appointed Purchasing Agent of the Louisville Water Company. The assignment meant the planning and installation of a completely new and up-to-date buying procedure and record system. Officials and department heads were most cooperative. They had seen the necessity for such a move and were receptive to specification changes and material standardization, as well as to the changes in buying routine. Their confidence was rewarded by a striking record of savings from the very outset.

Lev Anderson joined the Louisville Association in 1935. A year later he was elected Vice President, then President and National Director. He has missed only one national convention in that period. A member of the Governmental Purchasers Group of N.A.P.A. from the beginning, he is now a member, also, of the Public Utility Group. An earnest student of purchasing, there are probably few members of the association so intimately familiar with the current literature on the subject.

Number one personal interest is his charming family, which now includes Leverett Junior and Emily Sue. He is a worker and officer in Louisville's First Presbyterian Church, and a member of Kiwanis. In sports, he enjoys golf, bowling, tennis, swimming, and fishing, all of which he values for exercise and companionship rather than for his score.



ARTHUR A. MEYER. Purchasing Agent of the West Virginia Rail Company, Huntington, has made his own place in purchasing. He organized and built his own department, starting from scratch, after a varied experience in mechanics, design, and costs.

Later, he was largely instrumental in organizing the
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By J. R. MILLIKAN

Purchasing Agent

Dallas Power & Light Co.

WHAT PRICE TURNOVER?



When seeking a formula to measure purchasing value, be sure that common sense enters the equation

IN seeking methods to measure the efficiency of purchasing and stores departments, many devices have been instituted which are relevant only when applied under identical conditions. Because of the investment features, stores performance has been more rigidly subjected to yardsticks than has purchasing. In any group of purchasing and stores men, you will quickly hear such terms as "cost of issues" and "turnover."

Cost of issues is the rate obtained by dividing the operating expenses of the stores and purchasing departments by the value of material issued for any given period. Because this rate may be unduly low from excessive volume as during a construction period, or high during a period of recession when activities are restricted to streamlined maintenance, this cost is more affected by fluctuations in volume than by variations in operating expenses.

Fantastic Turnover Records

Turnover is the relation of issues to investment and is generally expressed on a yearly basis where the rate is obtained by dividing total issues by the average investment. Pride is often expressed when a turnover rate of 8 to 10 is obtained and the impression generally prevails that commendable results have been secured. If this assumption is true, why not increase turnover to a greater rate? After all, control can be applied by buying after the first of each month and depleting or exhausting the stock before the inventory record date at the end of the month.

Fantastic rates have been achieved on individual items as in the instance of a concern buying and using 10,000 gallons of gasoline monthly dispensed through a 500 gallon tank, thereby limiting maximum inventory

to 500 gallons, while realizing yearly issues of 120,000 gallons and a turnover rate of 240. By diligently limiting inventory record to 100 gallons at the month's end, the turnover rate increased to 1200.

Turnover assumed importance in merchandising because it was apparent that \$1,000 worth of merchandise bought and sold monthly at 10% profit yielded \$1,200 yearly and \$1,000 performed the work and earned the return of \$12,000.

So appealing was the miracle of turnover that merchants frequently sold at cost and depended on settlement discounts for profit accumulation. Credence was given this theory as 2% cash discount monthly computes 24.48% yearly for the twelve turnovers. A 5% cash discount such as is received on electrical conduit with a turnover of 1200 times, as outlined in the gasoline situation, would earn 63 times the investment.

To correctly evaluate the relative importance of turnover to investment, the accompanying chart will be of assistance and an understanding of the following terms will assist in its interpretation:

Price Multiplier is the ratio of the investment multiplier for a purchase of one month's supply of the multiplier for purchases in excess of one month's supply.

Investment Multiplier is investment factor plus unity (stores unit cost for an item of \$1.00 unit purchase value.)

Stores Unit Cost is unit purchase cost times investment multiplier.

Unit Investment Cost is unit price times investment factor.

Investment Factor is average inventory (in terms of month's supply) times monthly interest rate.

Average Inventory (in terms of month's supply) is one more than the number of months supply purchased divided by 2.

Turnover Rate is 12 divided by average inventory.

Let us construct a hypothetical stores and purchasing organization operating solely on borrowed money obtained from a general fund with interest charged monthly on invested balances with no consideration given to cash discounts, as they are generally credited to a clearing account. To be liberal, the value of money will be considered at 6%, and 3% is added for insurance and taxes. Issues costs are sometimes added to this figure but as they are a direct cost of stores distribution and not a function of investment, they will not be considered and the interest, insurance, and tax rate will be computed at 9% yearly or $\frac{3}{4}\%$ monthly.

Applying the Formula

Consider, for example, an item of \$1.00 unit value with normal usage of one per month, on which the initial purchase requires an expenditure of \$1.00 and a similar sum monthly so that over the yearly period the continuously invested balance is \$1.00, requiring an interest charge of \$.09 which corresponds to an investment cost per unit of \$.0075 (.09 divided by 12 items) and a stores unit cost of \$1.0075.

Average Inventory in terms of months = 1

Investment Factor $1 \times \frac{3}{4}\% = .0075$

Investment Multiplier $1 + .0075 = 1.0075$

Purchase of one year's supply represents an initial investment of \$12.00 which is reduced by issues of \$1.00 monthly so that \$1.00 is invested for 78 months $(1 + 12)$

2 12 with an interest charge of \$.585, a unit in-

vestment cost of .04875 $(.585 \div 12)$ and a stores unit cost of \$1.04875.

Average Inventory $\frac{1 + 12}{2} = 6\frac{1}{2}$ months

Investment Factor $6.5 \times \frac{3}{4}\% = .04875$

Investment Multiplier $1 + .04875 = 1.04875$

To determine from an investment standpoint what reduction in purchase unit is necessary to warrant a purchase of twelve months' supply, divide the investment multiplier for one month's purchase by the investment multiplier for a twelve months' purchase and the quotient gives the necessary multiplier $(1.0075 \div 1.04875 = .96067)$ which corresponds to a discount of 3.933%.

As an exact problem, suppose you are offered 3 conductor #8 electric service drop cable in 10,000 ft. quantities at \$76.40 per thousand feet, consumption being 10,000 ft. per month and you are also offered 50,000 ft. or 5 months supply at $2\frac{1}{2}\%$ discount or a multiplier of .975. The price multiplier shown on the chart for purchase of five months' supply is .98533, but you are buying below this figure and effecting a saving based on investment cost computed as follows:

Cost of 5 months' supply bought monthly in 10,000 ft. quantities is $50 \times 76.40 = \$3,820.00$

Cost of 5 months' supply bought at one time is $50 \times 76.40 \times .975 = 3,724.50$

Investment Value

$\$3,820.00 \times 1.0075 = \$3,848.65$

$\$3,724.50 \times 1.0225 = 3,808.30$

Saving \$ 40.35

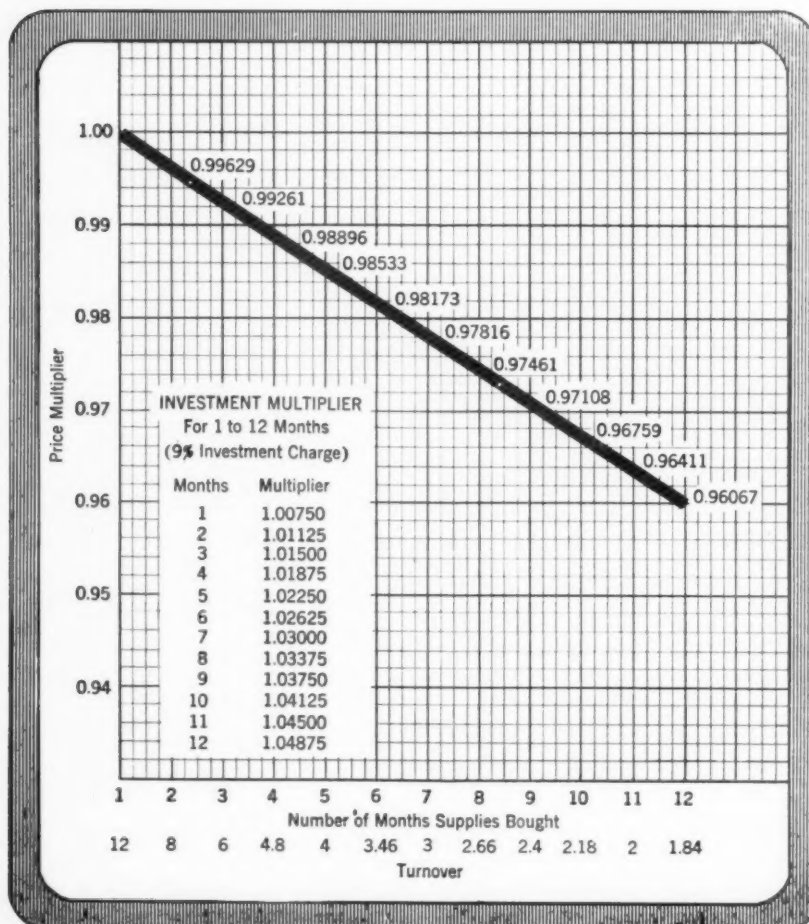
The accompanying chart showing multipliers and investment factors contemplates operation with existing facilities and allowance must be made if inventory increases necessitate additional charges for space. Such factors as obsolescence, chaotic markets, etc., cannot be measured by any standard equation as they differ with the exigencies of each situation, but the functions of money at a uniform rate are constant, so the chart is applicable anywhere.

Charts vs. Reason

Finally, this presentation is prompted because of our typical American proneness to seek a yardstick by dividing something into something else with complete faith that a measure of efficiency has been secured when all too often the sole achievement is a meter to inspire clever manipulation.

Because of the interrelation of turnover and investment, the purchasing agent is in possession of all the pertinent facts governing the quantity and time to purchase and the responsibility for investment control should be his. It is also his job to appraise all other contributions to time and quantity as charts merely supplement and do not displace reason. There is no substitute for judgment.

Curve showing price multiplier necessary to offset investment charges on purchases in excess of one month's supply.



What the Purchasing Agent Should Know About INDUSTRIAL TRUCK WHEELS and CASTERS

By E. L. CADY

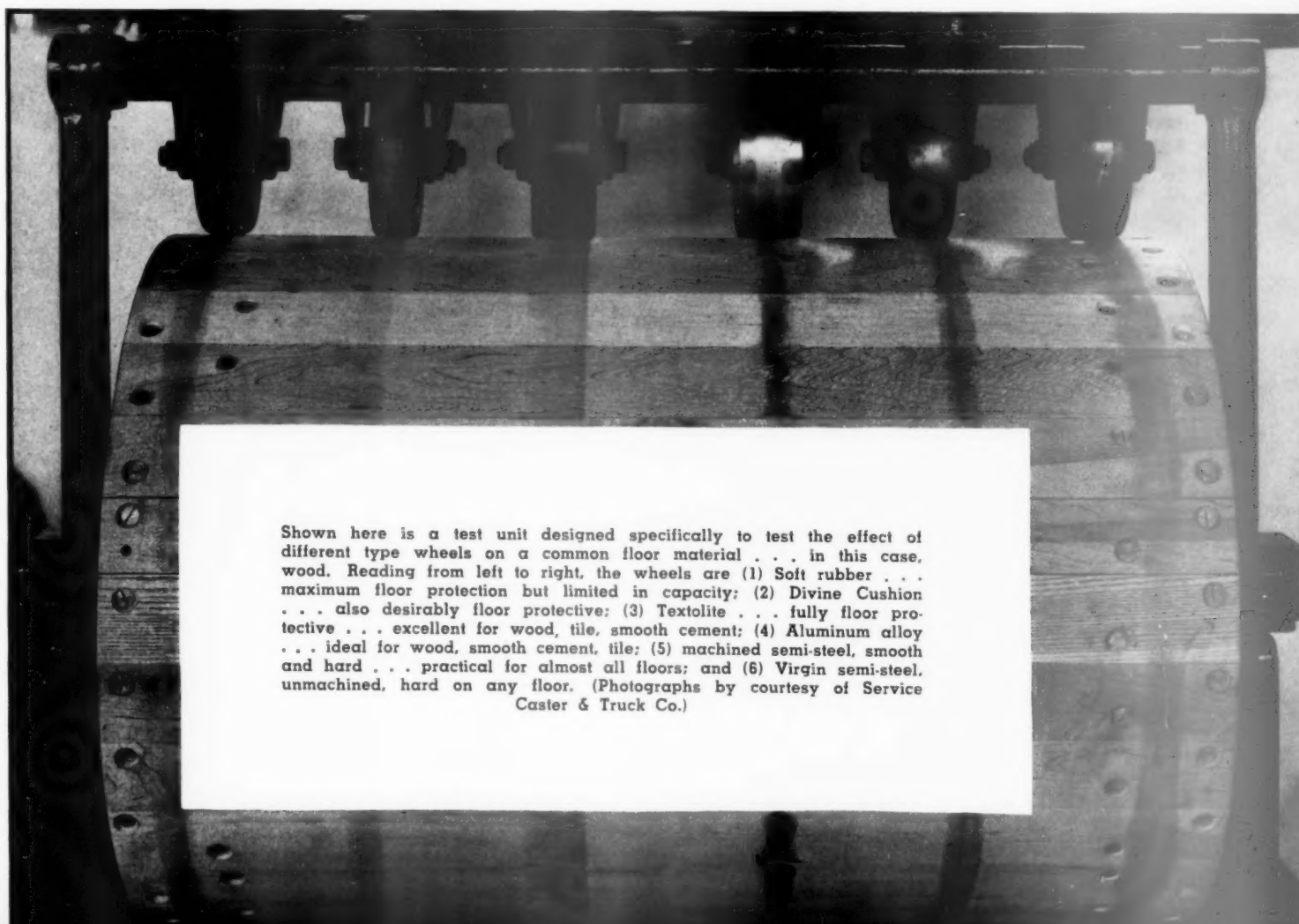


THERE is no better test of the ability of the Purchasing Agent to use his imagination than the buying of the wheels and casters used in factories, warehouses and offices.

This is because the superiority of one type over another for a given application may be a matter of intangibles. The savings to be made may not be directly translatable into dollars and cents. And even worse, a superior wheel alone may be helpless to correct a condition blamed on a bad one.

As an example of intangibles, take the distraction caused by a noisy, rattling truck which must be pushed past 60 machines each of which has one operator. It is well known that loud noises have the highest power to attract or distract the attention of men. Therefore, the truck might

A typical installation of pneumatic-tired wheels. These are under a Service "White Wing" truck for city D.S.C. use. This type of truck can also be used around the shop as a scrap truck. Pneumatic-tired trucks work to best advantage over rough, littered floors or out-of-doors. Only disadvantage, capacity is limited.



Shown here is a test unit designed specifically to test the effect of different type wheels on a common floor material . . . in this case, wood. Reading from left to right, the wheels are (1) Soft rubber . . . maximum floor protection but limited in capacity; (2) Divine Cushion . . . also desirably floor protective; (3) Textolite . . . fully floor protective . . . excellent for wood, tile, smooth cement; (4) Aluminum alloy . . . ideal for wood, smooth cement, tile; (5) machined semi-steel, smooth and hard . . . practical for almost all floors; and (6) Virgin semi-steel, unmachined, hard on any floor. (Photographs by courtesy of Service Caster & Truck Co.)

easily distract the attention of each operator for thirty seconds, which would be thirty lost man minutes for the sixty men, or the net loss of one half man hour. Figure the value of a man hour, with all its elements of machine time, overhead, etc., at only \$2.00, and there is a net loss of \$1.00 per truck trip due to noise distraction, which loss may be multiplied by trips per day and may be enhanced by work spoilage, operator accidents and fatigue, and the like.

But the noise is not always correctable by changing the wheels alone. Correcting it may require such things as: (1) better wheels, (2) repairing the floor, (3) rebuilding or replacing the truck body, (4) different loading of contents of truck — and so on.

Yet the noise certainly will be reduced if more expensive, more accurate and slightly shock-absorbing wheels are substituted for cheap, inaccurate and shock-multiplying ones. Will the gain be worth the extra cost? Or should there be insistence that all the noise producing factors be corrected together?

It is a problem for the visualizing abilities of the Purchasing Agent. He is aided, of course, by the estimates of the situation made by his engineers, and by the experiences of the sales engineers who sell the wheels. Nevertheless the final answers, whether good or bad in results, may be lost in that grand intangible called "overhead."

In contrast to this there are occasions where the savings to be made are unmistakable. As an example, a high grade set of wheels might cost \$3.00 while a lower grade costs \$1.00 with an immediate price advantage of \$2.00 for the lower grade.

If the high grade sets lasts two years and the low grade one year, that cost advantage is reduced to \$.50 per year. And if each set costs \$1.00 for labor to install, then the original advantage per year is cancelled, and the higher grade may have a dozen small advantages of lower lubrication costs, less manual effort by operators, and the like.

Such clear cut situations, however, are hardly problems to the Purchasing Agent. It is when the sav-



Easy-rolling wheels are the basis of many special devices for conveniently handling various types of loads. (Colson Corp.)

ings undoubtedly exist but are hard to trace and impossible to prove, that he has to do hard thinking about wheel and caster values.

The number of both kinds of situations is increasing as the use of wheels and casters increases. And with the shortening of work weeks requiring more production speed and control wheel use is increasing rapidly.

More trucks are used to feed and to empty other kinds of materials handling systems.

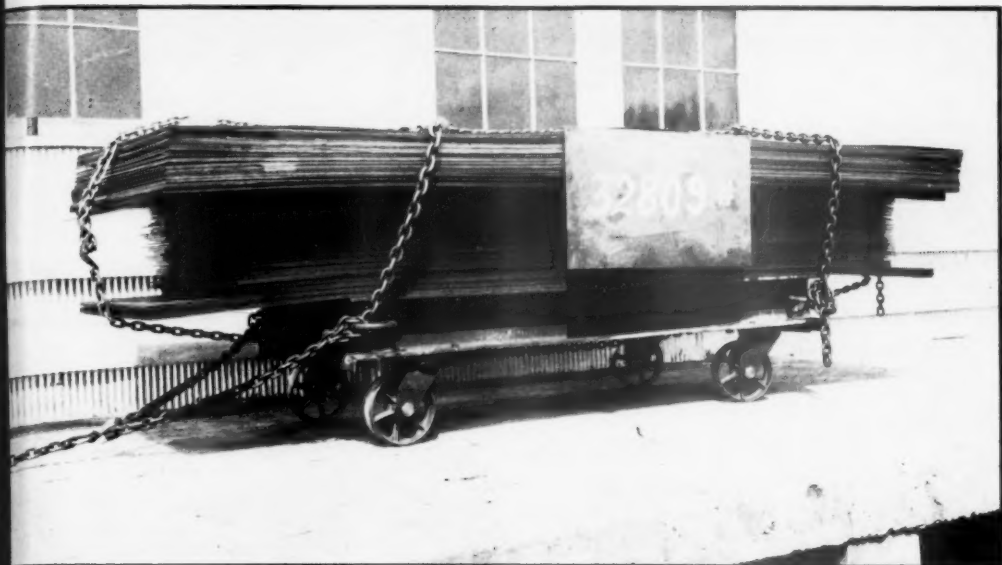
There is a trend to trains of trucks pulled by electric or gas industrial tractors or by cables, chains, and the like.

More portable equipment, such as welders and elevators, is in use. A large part of it uses wheels.

Wheels and casters are being used on more office machines, office chairs, factory chairs and the like.

The illustrations below show typical use of ball and roller bearings in caster design for different conditions of use. At left: double ball races in the yoke accommodate thrust and radial loads, Hyatt or Timken roller bearings are used in the wheel. Center: single ball race swivel truck caster. Right: double ball race swivel truck caster. (Photos by Service Caster & Truck Co., and Bond Foundry & Machine Co.)





Wheels must be chosen to stand up under severe service in the intended application. Here is a manufacturer's test on 12" Service Forge Weld "Bruiser" casters with a rated loadability of 4,000 lbs. each, or a total of 16,000 lbs. per set of four. In the test, these casters were loaded with twice the rated capacity and pulled off the concrete dock to drop 12" to a steel plate, with an estimated impact of 4,000,000 lbs. Wheels suffered only a slight flattening at point of impact; bearings and ball races were undamaged.

Inverting the wheels or casters so that a line of them can support moving trays or boxes, or that a station of them may facilitate changing the direction of travel of objects that otherwise slide on flat surfaces, is increasing in popularity.

From the Floor Up and Down

In many cases the rapidly increasing wheel-borne load is rolling over floors never designed to stand it.

The original floors were laid to be friendly to the feet of those walking and working on them. Trucking was anticipated only to supply machines which produced more slowly than those of today and which were served by men who worked longer hours. Plans called for fewer truck loads per hour, on less heavily loaded trucks which neither travelled at the speeds nor were maneuvered with the violences now common.

The growth in traffic usually has been slow. If the works manager is asked to make a direct comparison between the conditions of today and five or ten years ago, it may easily astonish the Purchasing Agent.

The factory traffic engineers, in cooperation with the Purchasing Agent, must use wheels and casters which will do less damage to floors, or must improve their floor maintenance programs, or must relay floors—or all three.

The tendency to use better types of wheels and casters is growing so rapidly that some engineers speak as if resilient tired anti-friction bearing ones had only been born within the past ten years. Actually these types are much older than that; it is only their very wide adoption which has grown recently.

The Purchasing Agent, of course, must go along with this better wheel trend of his engineers. In doing so, he is helped by the fact that more kinds of better wheels are available to select from. He can demand that better "engineered" recommendations for wheels be made; that there be more exact data to use in picking either the wheels themselves or the wheel makers who are to talk to the engineers. He will face intangibles, but at least can have the intangibles reduced to classes so his purchasing of wheels becomes controlled, modern and above the "hunch" technique.

Some Simple Selection Factors

The greatest damage done to wheels by floors or to floors by wheels, comes from shocks like hammer

A Table of Check Points for Buying Wheels and Casters from the Floor Up

Peripheries

1. Concentric with axles
2. Diameters
Large enough to lessen shocks
Small enough to avoid penalties
3. Width
Wide to distribute wear
Narrow to avoid turning friction
4. Hardness
Hard for easy rolling on hard, smooth floors
Soft to absorb shocks and lessen bumps
Resilient to regenerate energy of compression
Tough to avoid cutting
5. Special qualities
Oil or chemical resistance
Heat or cold resistance

Webs

6. Strong enough
7. Well balanced and made

Bearings

8. With lowest possible friction
9. Adequate for load, thrust and shock
10. With fewest lubrication troubles and temptations
11. Proof against plant cleaning program

Forks and fasteners

12. If to caster, then with least practical off set
13. Imposing best distribution of strains on truck
14. Sometimes shrouded or shielded for safety
15. Strong enough
16. Without sharp projecting parts
17. Demountable for inspection and maintenance

Maintenance

18. Standards for interchangeability
19. Standard interchangeable parts

blows. When a wheel runs into a bump of any kind, there is a shock. And the faster the speed and more abrupt the bump, the more like a hammer blow is the shock.

First of all, the wheel should not provide its own hammer blows. Therefore, its rim must be concentric with its axle, and must be smooth. Eccentricity means one hammer blow when the wheel goes up on its high spot, and another when it comes down again. The spalling or eroding effect on the floor at one revolution may be slight, but the cumulative effect is one of those costly intangibles. And due to the hard, grinding bump when coming down off the hump, eccentric wheels tend to wear more eccentric with continued use.

Second, the wheel diameter should be large enough, but not too large.

When a large wheel meets a bump of ordinary size, it takes that bump with less shock and less slowing of the truck than does a smaller wheel. This is because a wheel is mostly a system of levers, and the time and motion elements which are devoted to getting the load over the bump are greater for large diameters than for small ones. The "hill" which the large diameter wheel climbs is equal in height but smaller in gradient.

If floors are cluttered with chips, or are rough, larger diameter wheels may be preferred. Also, width for width, the large wheel distributes its wear over more area of tire.

The large diameter wheel, however, has greater leverage and can do greater damage to axles and bearings when it receives twisting strains or shocks at the sides of its rims. Furthermore, it can set up problems in shielding for safety, and by raising the center of gravity.

Third, the wheel should be wide enough.

Wheels with wide faces will find smooth going where narrow ones find bumps due to narrow pits and hollows. They distribute the wear over wider areas of floor and of their own tires. On metal wheels,



Efficient warehousing and in-and-out handling of materials depends on adequate rolling equipment. (Colson Corp.)

usually made of malleable iron or semi-steel castings, it is important that the wheel section is heavy enough to prevent chipping at the edges.

The objection to wider wheels is that they have more frictional resistance when the truck is being taken around a corner. The wide line or area of floor contact surface must twist in relation to the floor, and the shorter the turn the sharper the twist.

Wheel contact surfaces or tires, range from steel hardness to the softness of pneumatic tires. In general, the smoother and more durable the floor, then load for load the harder can be the tires. And this is a fourth selection factor.

Soft but highly resilient tires have decided advantages on floors that are rough or cluttered. The soft tires go over the bumps without requiring the axles to lift the loads very much, and then when leaving the bumps the resiliency of the tires returns or regenerates to the load much of the energy used. The action is like that of a spring which compresses to cushion a shock and then in decompressing returns much of the power which caused the compressing.

Soft tires also can have narrow floor contact areas under light loads, but progressively increasing ones under heavy loads.

Too soft tires may have slower regenerative effects than desirable, may need to be too wide in order to have the needed load capacities, may be too easily cut or damaged, and the like. Degree of softness can be had in various fabric tires, plastic bonded fabric tires, and types of rubber ones. Some soft ones are easily damaged by oil or chemicals through which they must roll, others are not.

As a general rule, it is easier and cheaper to replace rubber tires than to repair floors. And it should be noted that rubber compounds are available which are resistant to oils, gasoline, etc.

Fifth, the web of the wheel must be strong enough to bear without fracture or permanent deformation any shocks or stresses it may get. And although imbalance or crudeness here may not set up shock loads bad enough to do serious damage, there is no reason for not demanding webs well made and balanced.

Sixth, there are several design factors worth noting. The offset of the fork should be sufficient to permit easy swiveling action. Low overall height keeps

Continued on page 91

A Table of Check Points for Qualities of Casters and Wheels Needed

Maximum loads per wheel	Nature of floor wear
	Spalling or eroding
Shock loads, due to	At points where trucks are turned
Condition of floor	Around patches
Method of loading and unloading trucks	Other
Use of trucks in freight cars, over bridges, etc.	Industrial Relations
Dirt, chips, debris on floor	Noise control
	Fatigue control
	Use of semi-pensioners to push light trucks
	Management self respect
Floor type	Running loads
Concrete, ordinary	Starts and stops per day
Concrete, hard surfaced	Speeds
Wood boards	Grades
Wood blocks	Turns
Mastic	Lengths of runs
Other	

THE MARKET PLACE



First - of - the - month quotations
for carloads or mill shipments,
with comparative prices quoted
one month ago and one year ago

	Oct. 1 1939	Sept. 1 1940	Oct. 1 1940
ACIDS			
Acetic, 28%, cwt.....	2.23	2.23	2.23
Muriatic, 18 deg., cwt.	1.50	1.50	1.50
Nitric, 36 deg., cwt.	5.00	5.00	5.00
Oxalic, Works, cwt.	10.75	10.75	10.75
Phenol, Works, cwt.	14.25	14.25	14.25
Sulphuric, 66 deg., ton	16.50	16.50	16.50



BUILDING MATERIALS

Brick, N. Y. dock, per M.....	12.50	12.50	12.50
Cement, f.o.b. plant, bbl.	2.15	2.15	2.15
Glass, single B, per box.....	2.70	2.70	2.70
Lime, per bbl.....	2.16	2.85	2.85
Nails, wire, per keg	2.45	2.55	2.55
Oak flooring, per M. ft.....	74.00	68.00	84.00 ↑
Southern pine, K.C., per M. ft.	23.35	24.57	26.94 ↑

CHEMICALS

Alcohol, denatured, gal.....	.29½	.31	.31½ ↑
Alum, potash, cwt.....	3.40	3.75	3.75
Alumina Sulf., Comm., Works, cwt.	1.15	1.15	1.15
Ammonia, aqua, 26 deg., drums ....	.02	.02¼	.02¼
Arsenic			
White, cwt.	3.00	3.00	3.00
Red, cwt.	15.75	18.00	18.00
Barium			
Chloride, ton	77.00	77.00	77.00
Carbonate, ton	56.50	56.50	56.50
Benzol, pure, gal.....	.16	.14	.14
Borax, powd., ton	48.00	48.00	48.00
Chlorine, cwt.....	1.75	1.75	1.75
Formaldehyde, lb. ....	.05¼	.05¼	.05¼
Glycerine, drums, lb. ....	.12½	.12½	.12½
Lead acetate, white, broken, cwt.	11.00	11.00	11.00
Nickel sulphate			
Double ....	.13	.13	.13
Single ....	.13	.13	.13
Potash			
Caustic, solid ....	.06¼	.06¼	.06¼
Permanganate ....	.18½	.18½	.18½
Sal Ammoniac			
Gran, white, cwt.	4.50	4.50	4.50
Gran. gray, cwt.	5.75	5.75	5.75

	Oct. 1 1939	Sept. 1 1940	Oct. 1 1940
SALT			
Salt peter crystals .....	.07½	.081	.081
Soda			
Ash, 58%, light, bulk, cwt. ....	.90	.90	.90
Caustic, 76%, solid	2.30	2.30	2.30
Sal, Works, cwt.	1.10	1.10	1.10
Sodium			
Bicarbonate, cwt.	1.70	1.70	1.70
Phosphate, cwt.	1.85	2.10	2.10
Silicate, 60 deg., cwt.	1.65	1.65	1.65
Sulphur, Comm., cwt.....	2.60	1.60	1.60



COAL & COKE

Anthracite, stove, mines.....	5.30	6.15	6.25 ↑
Bituminous, Cleaf, mine run...	2.70	2.50	2.50
Bituminous, Pa. Grade A.....	2.50	2.30	2.30
Beehive Coke, Connellsville....	4.75	4.35	4.35
By-product Coke, Newark	10.80	11.38	11.38

FERTILIZERS

Muriate potash, 80-85%, per unit K20 .....	.53½	.53½	.53½
Sulphate potash, 90-95%, bags.	36.25	36.25	36.25
Nitrate soda, bulk	27.00	27.00	27.00
Sulphate ammonia, dom. bulk..	27.25	28.00	28.00
Steamed bonemeal, 3 and 50, per ton	27.00	32.50	32.50

GRAINS

Barley, malting, bu.....	.69½	.57½	.71½ ↑
Corn, No. 3, yellow, bu.....	.51	.65	.63½ ↓
Oats, No. 2 white, bu.....	.34¾	.31	.32¼ ↑
Rye, No. 2, Western, bu.....	.74½	.56½	.62¼ ↑
Wheat, No. 2, hard winter, bu..	.81¼	.70¾	.76½ ↑
Flour, spring patents, 196 lbs...	nom.	4.55	4.95 ↑

HIDES

Light native cows, lb.....	.16	.09¾	.12½ ↑
Heavy native steers, lb.....	.16½	.09¾	.13 ↑
Calfskins, 5-7 lbs. per skin....	2.00	1.00	1.40 ↑

IRON & STEEL

	Oct. 1 1939	Sept. 1 1940	Oct. 1 1940
Pig iron, foundry No. 2.....	23.00	23.00	23.00
Pig iron, basic, valley.....	22.50	22.50	22.50
Cast iron pipe, New York....	52.20	52.20	52.20
Forging billets, Pittsburgh base	40.00	40.00	40.00
Sheet bars, Pittsburgh base....	34.00	34.00	34.00
Wire rods, Pittsburgh base....	43.00	40.00	40.00
Cold rolled sheets, cwt., Pitts- burgh base.....	3.20	3.05	3.05
Hot rolled annealed sheets, cwt., Pittsburgh base.....	2.00	2.10	2.10
Cold rolled strips, cwt., Pitts- burgh base.....	2.95	2.80	2.80
Hot rolled strips, cwt., Pitts- burgh base.....	2.00	2.10	2.10
Tin plate, cwt., Pittsburgh base	5.00	5.00	5.00
Bars, cwt., Pittsburgh base....	2.10	2.15	2.15
Shapes, cwt., Pittsburgh base...	2.10	2.10	2.10
Bright wire, cwt., Pittsburgh base.....	2.60	2.00	2.00
Ground shafting, cwt., Pitts- burgh base.....	2.70	2.65	2.65
Rails, ton, Pittsburgh base....	40.00	40.00	40.00
No. 1 heavy melting scrap, ton, Pittsburgh.....	22.50	18.50	18.50



METALS, NON-FERROUS

Aluminum, virgin ingots.....	.20	.18	.18
Antimony, American, spot.....	.14	.14	.14
Copper			
Electrolytic.....	.12	.11	.12 ↑
Casting.....	.12 1/4	.10 5/8	.11 5/8 ↑
Lake.....	.12 1/8	.11	.12 ↑
Chromium, 97%, spot.....	.85	.84	.84
Lead, E. St. Louis.....	.0535	.0475	.0485 ↑
Nickel, ingot.....	.35	.34	.34
Quicksilver, flask.....	150.00	184.00	173.00 ↓
Silver, bars, N. Y., per oz.....	.35	.34 3/4	.34 3/4
Tin, Straits, spot.....	.60	.5063	.5175 ↑
Zinc, E. St. Louis.....	.065	.065	.0725 ↑

METAL PRODUCTS

Copper, wire, bare, cwt.....	15.875	14.375	15.375 ↑
Yellow brass sheets, high.....	18.65	18.23	19.23 ↑

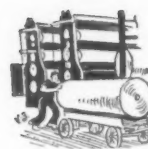


NAVAL STORES

Turpentine, gal.....	.33 1/2	.35 1/2	.36 3/4 ↑
Rosin, Grade B, cwt.....	1.89	1.80	2.00 ↑

PAINT MATERIALS

White lead, dry, basic, car- bonate.....	.07	.07	.07
Carbon black.....	.03 3/4	.03075	.03075
Shellac, orange.....	.17	.14	.14
Linseed oil.....	1.08	.088	.083 ↓



PAPER

News, roll, ton.....	50.00	50.00	50.00
Book, M. F., cwt.....	6.25	6.40	6.40
Wrapping, northern, cwt.....	5.00	5.25	5.25
Wrapping, southern, cwt.....	3.90	4.25	4.25
Wrapping, manila jute, cwt....	8.00	8.25	8.25
Chip board, No. 1, ton.....	40.00	35.00	35.00
Wood pulp, mech., ton.....	22.00	34.00	34.00
Wood pulp, sulph., No. 1, cwt.	2.00	3.17 1/2	3.17 1/2



PETROLEUM

Crude, Mid-Continent.....	1.02	1.02	1.02
Crude, Penna.....	1.02	1.55	1.44 ↓
Gasoline, 65 oct.....	.0655	.05	.045 1/2 ↓
Bunker Oil C.....	1.05	1.15	1.15
Kerosene, 41-43 grav.....	.047 1/2	.048	.048
Penn. bright stock, light, 25 P.T.....	nom.	.19	.19
Penn. cylinder oil, 600 flash....	nom.	.17 1/2	.17 1/2



RUBBER

Smoked sheets.....	.21	.19 3/4	.19 3/4 ↓
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TEXTILES

Cotton middlings, Galveston...	.0886	.0909	.0922 ↑
Cotton yarns, 22s.....	.27 1/2	.23 1/2	.24 ↑
Print cloths, 38 1/2", 64x60....	.05 3/4	.04 3/4	.05 1/4 ↑
Sheeting, 37", 48x48.....	.06 5/8	.05 1/8	.05 1/2 ↑
Wool, fine combing, 1/2-blood..	1.01	.84	.88 ↑
Worsted yarns, French 2-40s...	2.00	1.75	1.80 ↑
Worsted yarns, English 2-40s..	1.95	1.57 1/2	1.65 ↑
Silk, Japan, double extra cracks	3.19	2.47	2.55 ↑
Rayon, viscose, 150, 40s.....	.53	.53	.53
Burlap, 10 1/2-oz., 40".....	.083	.069	.0725 ↑
Hemp, Manila.....	.09 1/2	.05 7/8	.06 1/4 ↑

PURCHASING

Cans

TO HOLD THE BOUNTY OF A NATION

A few years ago only the few could afford vegetables out of season. Today vegetables in sanitary tin cans bring their healthful vitamins the year 'round to every family in the land, at trifling cost.

Every year America uses *ten billion* tin cans, which make it possible to save and distribute 300 million dollars worth of food and other perishables for the benefit of the public.

America is more healthful with these vegetables added to its winter diet, farmers have millions in extra income, food prices are lower -- all because of cans.

And this is only *one* use of steel. Our transportation, homes, clothing, amusements, national defense -- everything depends on steel for its material or on steel machinery for its construction. And steel, in turn, depends on *men* to make it right. Here at Youngstown we are constantly making improvements to keep our mills as modern as science can develop. But all the equipment in the world can't equal *men* in the making of fine steels. We are proud of our workmen who are spending their lives making the finest TIN PLATE that skill and care can produce.

Tin Plate - Sheets - Plates - Pipe and Tubular
Products - Conduit - Bars - Rods - Wire - Nails -
The Plates and Spikes

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Manufacturers of Carbon and Alloy Steels

General Offices

YOUNGSTOWN, OHIO

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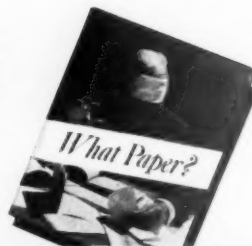
Paper is the base of the job, but when you prepare your booklet, folder, catalog or broadside for the press, when the time comes to decide on *line cuts or halftones—letter press or offset—color or black and white*, your printer is the man who can give you expert and professional assistance.

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THE DUMORE COMPANY HELPS SALESMEN

SALESMEN calling on the Dumore Company, Racine, Wis., receive a helpful and understanding "Open Letter" from the Purchasing Agent, which has proved to be a diplomatic and effective way of bringing sales interviews into line with purchasing department policies as well as with good selling practice. Informally it sets forth the simple regulations concerning calling hours and breaks the ice so that roundabout and time-wasting formalities are made unnecessary in getting the interview under way. Being designed and used for general circulation to all callers, there can be no inference of discrimination. After a few months of use, the general reaction is that the letter has been accepted literally, at face value, and has been definitely helpful to salesmen and buyers alike. There has been no resentment, and though results in respect to time are exceedingly hard to measure, it does seem that more is now being accomplished in the short and crowded hours of the business day. The letter follows:

AN OPEN LETTER TO SALESMEN

Dear Salesmen:

Probably most of you don't think that Purchasing Agents realize how difficult your jobs are, but we do, and I'd like to make a few suggestions that will help to make your work easier, at least as far as The Dumore Company is concerned.

Both you and I have to keep hustling to take care of our work, and we can help each other out by sticking strictly to business, leaving the War, Golf, Football, etc., to take care of themselves after 4:30. I like to discuss these matters as well as anybody, but we just don't have time for them.

Another thing that will help us both is a good Sales Plan. Please don't ask me to look through your entire catalog, but briefly present the best points of it after analyzing what you think our needs are.

Since we close at 4:30 the time after 4:00 is very crowded; so try to call earlier. You will always be assured of prompt and courteous treatment by our organization, and if at any time you think you have waited too long, feel free to ask the Operator to check up on me.

I am sure that the above suggestions will be of mutual benefit to your companies and mine.

Yours truly,

J. M. HAMILTON
Purchasing Agent

P. S. Don't talk reciprocity. We buy and sell only on a basis of satisfaction.

When writing International Paper Company please mention Purchasing

DIET TIP FOR FAST PRODUCTION . . .

Feed 'em AMERCUT!

HIGH-SPEED, continuous machines thrive on AMERCUT Cold Finished Steel Bars. AMERCUT Bars are made to meet the most rigid specifications for quality, size and uniformity. They have the necessary machining qualities which permit high cutting speeds without cost-

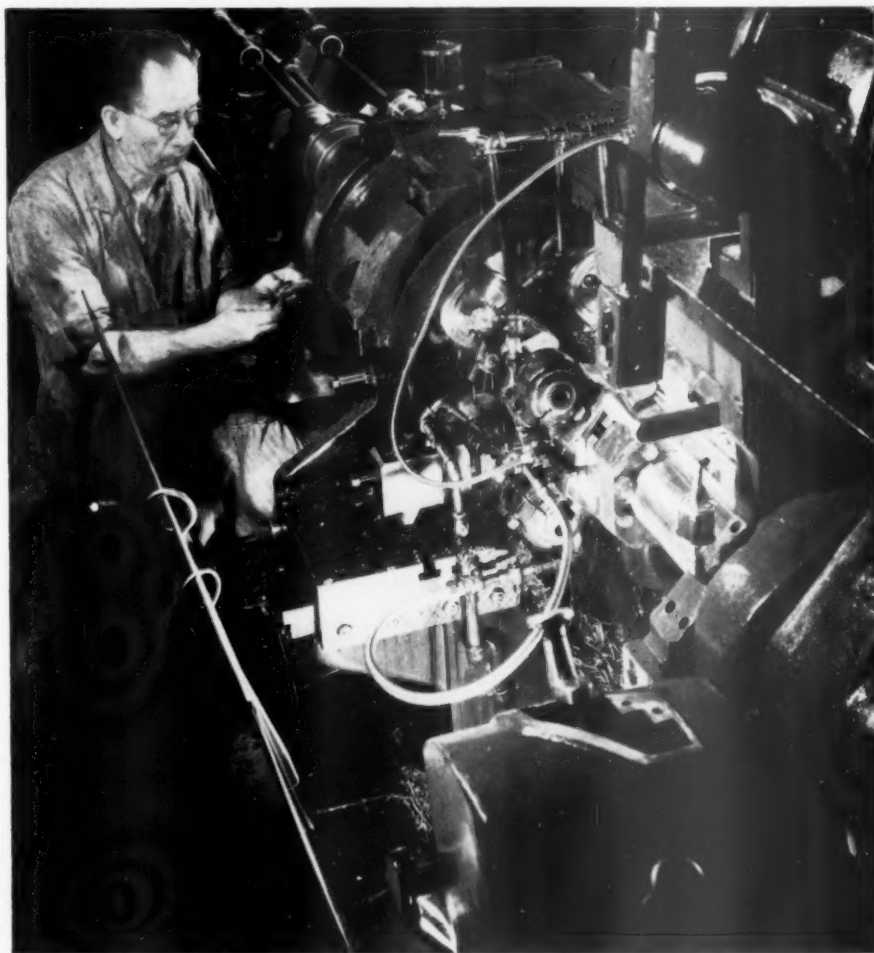
ly production delays.

AMERCUT Bars are produced in a wide range of carbon steels and alloys which can be machined into an amazing variety of parts. The uniformity of these bars results in reduced wear on tools and economical production of parts that are accurate

in all dimensions.

We are equipped to supply you with AMERCUT Bars in any type or grade and in the shape or finish best suited to your needs. Rounds are available in all sizes from 1/32" up to and including 6" and we will be glad to furnish you with full information on special sizes and shapes.

Our new catalog on AMERCUT Bars will be sent to you upon request.



Always look for the AMERCUT Tag on your Cold Finished Bar Shipments

AMERICAN STEEL & WIRE COMPANY

Cleveland, Chicago

Columbia Steel Company, San Francisco, Pacific Coast Distributors



and New York

United States Steel Export Company, New York

UNITED STATES STEEL

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World's Largest Shovel Plant

protected by
Carey BUILT-UP ROOFS



THE Ames Baldwin Wyoming Company is another of the many leading industries that depends upon CAREY Roofs for economical, trouble-free service. All buildings of its mammoth plant at Parkersburg, W. Va., have the protection of these famous roofs.

CAREY Roofs wear longer—cost less per year—because they are built up, layer on layer, from high quality felt and asphalt. Over 50 years of roofing experience are back of them—they *must be right*. Whatever your roofing problem, large or small, put it up to CAREY for satisfaction. Write Dept. 68 for "Specifications for Bonded Roofs."



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Roofing ... Siding ... Flooring ... Insulations ... Roof Coatings and Cements
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Dependable Products Since 1873
BRANCHES IN PRINCIPAL CITIES

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PURCHASING COURSES IN NEW YORK

Three courses in purchasing got under way in New York City during the past month.

At the New York Business Institute, a division of the Y.M.C.A. Schools, the course opened on September 23rd, under the direction of Henry Meyer, Purchasing Agent of the General Bronze Corporation and a past president of the New York Purchasing Agents Association. This is the seventeenth year in which the course has been offered. It will consist of thirty-two sessions, meeting on Monday and Thursday evenings at the West Side Y.M.C.A. It is described as a "practical and intensive training in purchasing and storing procedure."

The purchasing course at New York University also opened on September 23rd, and will continue on Wednesday evenings through the school year, to June. This course "deals with all phases of purchasing from the inception of a request to purchase through to approval of invoice for payment, including the legal aspects of purchasing budgets. It also gives consideration to methods of storing, warehousing, control of inventory, classifying and symbolizing."

Columbia University offers an evening course in Raw Material Controls, to be given on Wednesday evenings during both semesters of the college year. The first session was held on October 2nd. William H. Koenig is the instructor. This course "makes an appeal to persons whose business lives center around the trade in raw materials. It should be particularly helpful to those who wish to amplify their present knowledge and to those who are interested in the wider ramifications and issues which are involved in the various control schemes."

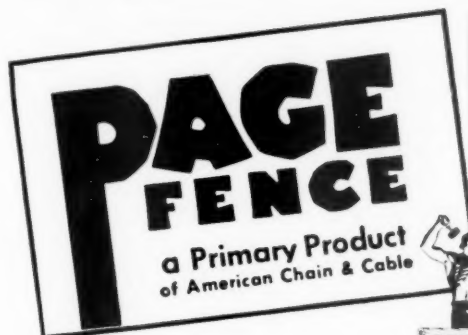
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John E. Gallagher has been appointed purchasing Agent of The Columbia Mills, New York City, succeeding Frederick B. Weller, who is retiring after long service in that position. Mr. Gallagher has for some years served as Assistant Purchasing Agent for the company.

Orrick A. Childs has resigned as Purchasing Agent for the White Castle System, to enlist in the U. S. Army. He has been assigned to the Army Finance Department at the Panama Canal. Mr. Child has been active as a member of the machine gun troop of the 104th Cavalry, Pennsylvania National Guard.

Fred Garrett has been appointed Purchasing Agent and building manager of the Dallas (Texas) Gas Co., succeeding George W. Martin, whose promotion to the post of general superintendent was reported last month. Mr. Garrett has been Assistant Purchasing Agent since 1933.

H. H. Smith, Purchasing Agent for the Imperial Brass Mfg. Co., Chicago, since 1917, has been assigned to the Sales Extension department of the company.



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ESSENTIAL PRODUCTS
OF
AMERICAN CHAIN & CABLE CO., Inc.**



CHAIN—Weed Tire Chains
Welded & Weldless Chain & Attachments
AMERICAN CHAIN DIVISION

CABLE—Tru-Lay Preformed Wire Rope and
Crescent Non-preformed Wire Rope
Tru-Loc Fittings—Tru-Lay Control Cables
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BRAKES—Tru-Stop Brakes for Trucks & Buses
● Tru-Level Oil Controller
AMERICAN CABLE DIVISION

CUTTING MACHINES—Wet Abrasive
Cutting Machines—Nibbling Machines
ANDREW C. CAMPBELL DIVISION

CHAIN BLOCKS—and Trolleys
FORD CHAIN BLOCK DIVISION

WIRE ROPE—Lay-Set Preformed Wire Rope
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"Koröless" (Stainless Steel) Yacht Rigging
Aircraft Control Cables
HAZARD WIRE ROPE DIVISION

AUTOMOTIVE EQUIPMENT—for
garages and service stations
MANLEY MANUFACTURING DIVISION

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tresses and Furniture
OWEN SILENT SPRING COMPANY, INC.

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HOISTS and CRANES—Wright Chain
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for public and personal property*

Men accustomed to looking ahead plan today to conserve property—for national need, for individual welfare. . . . In 97 key cities leaders of business and government are consulting the factory-trained, resident Page Fence distributors. They are profiting by the practical application of vast funds of well-ordered and thoroughly proved data which Page, America's First Wire Fence company, has accumulated since 1883. . . . The recently perfected Page Winged Channel Post is a current example of Page unflagging and consistent leadership in technical advance and erecting service. . . . Among the other products which have added to the fame of Page are Welding Electrodes, Gas-Welding Wires, Stainless Steel Tennis Nets, Traffic Tape, Manufacturers' Wire. . . . Page products like all the 137 essential products of the ACCO industrial family have as their first and final objectives—your savings and your safety.

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Bends
Flanges
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Gaskets

Bulletin 305 gives complete price list
of all materials and labor operations
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PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST.,
PITTSBURGH, PA.

Obituary

James Cheston, 83, who had served as Purchasing Agent for the Girard Trust Co., Philadelphia, for forty years, died at Atlantic City, N. J., August 30th, following an illness of several months.

William Whitehead Erwin, 62, Vice-President in Charge of Purchasing and Stores, Consolidated Edison Co. of New York, died at his home in New York City, September 12th. He had been with the company and its predecessors for 40 years.

Charles L. Rice, 55, Purchasing Agent for the Consumers Power Co., Jackson, Mich., died at the Foote Hospital in that city August 31st, of a heart ailment. Mr. Rice had been active for many years in the Public Utility Group of the N.A.-P.A., and was a past chairman of that group.

H. R. Smith, General Purchasing Agent of the Linen Thread Co., Paterson, N. J., since 1925, died at his home in Hawthorne, N. J., September 8th, after an illness of several months. He had been with the company thirty-eight years, joining the organization at Rochester, and coming to New York in 1906 as assistant to F. H. Sherman, a charter member of the New York Association.

J. E. Stauffer, Purchasing Agent for the A. M. Byers Co., Pittsburgh, up to the time of his retirement from active business because of ill health four years ago, died September 11th. He was a past president of the Pittsburgh Association, having headed that organization in 1923-1924.

John M. Wilson, Purchasing Agent for the Shoe Polish Division, Hecker Products Co., Indianapolis, died September 12th. Mr. Wilson had been in purchasing work for 25 years, formerly with the American Cottonseed Oil Co. and Gold Dust Corp., in New York; these companies were subsequently acquired by Hecker Products Co. He was transferred to Indianapolis two years ago.

Arthur S. Richardson, 60, formerly Assistant Purchasing Agent of the Whitin Machine Works, Whitinsville, Mass., died at his home, September 18th, after an extended illness. Mr. Richardson was town moderator of Northbridge for seven consecutive years by unanimous election, a past president of the Massachusetts Milk Goat Breeders' Association, member of the Sons of the American Revolution, and ranked high in the Masonic order in Worcester County.

John N. Moncrieff, who retired from active business last year after 21 years of service as Purchasing Agent of the New York Steam Co., died at his home in Bronxville, N. Y., September 20th. He had been in poor health for several months.

SALESMEN ARE WELCOME

(Continued from page 41)

largest industrial concerns in Western Massachusetts. Back in 1919, in one building, with a floor space of approximately 300,000 square feet and with approximately 500 employees, Westinghouse started an industry in this vicinity which has grown to such proportions that there are now sixteen buildings and a total floor space of 1,078,166 square feet. During the year 1937 there was a peak number of employees of 6,100.

"At the present time the following products are manufactured at the East Springfield Plant of Westinghouse: refrigeration units, air conditioning, commercial refrigeration units, water coolers, beverage coolers, room heaters, vacuum cleaners, and electric fans.

"Straight-line, continuous production with striking use of overhead traveling conveyors; extensive provisions for inspection and other forms of quality control; and finally, manufacture of many parts to tolerances of 0.0002 to 0.0004 of an inch characterize operations at the East Springfield Plant.

"The refrigerator units are shipped to the Mansfield Works in Ohio for assembly into steel cabinets.

"Production of these products is carried on for the most part in separate buildings arranged for progressive manufacture, except for a number of accessory finished parts and castings, screw machine products, stampings and the like furnished by the Feeder Departments. One outstanding Feeder Department is the Punch Press Division, which occupies floor space of about 50,000 square feet, and is equipped with more than 100 power presses.

"The refrigerator unit manufacturing layout is contained for the most part within a 100 by 600 foot building. In it is produced one of the most accurately fitted mechanisms of all Westinghouse products.

"Some inspection and assembly operations are carried on in a large, glass-enclosed, air-conditioned, dust-proof room. A similar dust-proof room is employed in assembling the sealed air-conditioning units. When the various components have been pressed into place, the shell is sealed by arc welding the head end. This is followed by a leakage test of the welded joint, under water.

"A sixteen-hour performance test is the culmination of a number of tests and inspections. Almost every group of operations end up in an inspection bench adjacent to the group. Then, in addition to the performance testing of each unit before being stocked for shipment, fifteen or more units are selected at random each week from stock and examined for defective finish, and so forth. They then go into a 'hot room' where, assembled in a refrigerator cabinet, they are required to operate at temperatures even higher than those encountered in household service.

"In all divisions of the Plant, equipment and processes are for the most part

of current development. Cemented-carbide tools are employed extensively, and extensive use is made of torch brazing and of all types of welding.

"The mass or continuous production characteristic of the Plant is apparent from the first step into any of the various manufacturing units, where slowly moving overhead traveling conveyors immediately catch the eye. These are ingeniously arranged, and are of all forms, including 'ferris-wheel,' 'roller coaster,' the latter at points where one or more ascend to let another pass, and finally roller conveyors between machines constituting a group of operations on a single part or on an assembly. Parts

reach operators and inspectors at each station at a height that reduces the necessity for reaching very far either in taking the parts to be worked on or placing finished processed parts to be conveyed to the next process. Nowhere does an operator have to walk more than two steps for his material.

"In addition to keeping operating groups supplied with raw material, semi-finished or finished parts, these overhead conveyors serve as 'traveling store-rooms,' thus eliminating to a large extent the necessity for raw materials and parts stores, with their floor space and personnel requirements. Also, in keeping materials and stock off the floor,

GREATEST "BUY" IN DRILL HISTORY!



SKILSAW ½ in. SPECIAL DUTY DRILL

100% ANTI-FRICTION BEARING
CONSTRUCTION FOR ONLY

\$44

Weights Only
8 LBS!





ONLY 3½" WIDE

LOOK at these features and you will decide to BUY! Compact, modern die-cast body, helical-cut gears for smooth performance. 2-pole safety switch. Every moving shaft mounted on a friction-free ball or needle-roller bearing. Powerful Universal motor for fast drilling.

The new SKILSAW Model 80 DRILL belongs in your plant... it is the biggest drill value on the market today! Ask for a demonstration.

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36 E. 22nd St., New York; 182 Main St., Buffalo; 52 Brookline Ave., Boston; 15 S. 21st St., Philadelphia; 2902 Euclid Ave., Cleveland; 2124 Main St., Dallas; 918 Union St., New Orleans; 1253 South Flower St., Los Angeles; 2065 Webster St., Oakland; 29 North Ave., N. W., Atlanta; Canadian Branch: 85 Deloraine Ave., Toronto.

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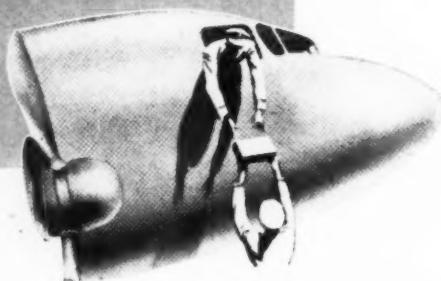
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TOOLS will
save you money

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Check List for Ball Bearing Source of Supply

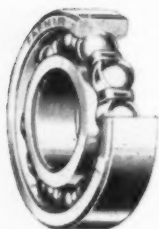
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**PROMPT
SERVICE**

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At 12:15 one noon Fafnir received a long distance call. A Detroit customer faced complete stoppage of production, pending delivery of a Fafnir WIR 320 Bearing (weight about 20 pounds). The bearing arrived in Detroit at 6:30 the same evening . . . was carrying its half-ton load frictionlessly an hour and a half later. . .



This single instance of Fafnir service will explain the importance of Fafnir factory stocks and Fafnir readiness to serve * * Give intangibles as well as tangibles full weight when you choose your bearing source. On every point, you will find that the Fafnir organization matches the high standards of the Fafnir product. The Fafnir Bearing Company, New Britain, Connecticut.

FAFNIR *Ball Bearings*

THE BALANCED LINE • MOST COMPLETE IN AMERICA

"Yours on Request" offers you the latest catalogs and manufacturers' announcements, information on new industrial products. Are you using this department? Turn to pages 10-16.

they make available an immense amount of floor space for machines and other production equipment and their operators."

1 1 1

ADVERTISING MANAGERS QUIZ BUYERS

The September 27th meeting of the Technical Advertising Association of Boston was designated as "The Purchasing Agents' Quiz Session—A chance to get the real 'low-down' on the man who must always be considered in your advertising program." Answering the queries of advertising and sales executives on matters of buying policy and procedure, attitude toward advertising, and related topics, were F. Albert Hayes, Purchasing Agent of the American Hide & Leather Co., Past President of the New England Association and now Vice President of the N.A.P.A.; George P. Brockway, Purchasing Manager of the American Optical Co., Past President of the New England Association and of the N.A.P.A.; A. W. Munster, Vice President in Charge of Purchasing for the Boston & Maine Railroad, Past Chairman of the Purchase and Stores Division of the Association of American Railroads; and George F. Gardner, Purchasing Manager and Advertising Manager of Winter Brothers Co.

1 1 1

NEW YORK COMMODITY EXCHANGES MAY MERGE

The five commodity exchanges located in New York City—Cotton (and Wool Tops), Cocoa, Coffee & Sugar, Commodity, and Produce—may consolidate their organizations in the near future, though at the present writing no definite plan has been proposed which will satisfactorily meet all of the factors involved in such a move. The total membership in the five exchanges is about 2,900. The move is suggested by the fact that the volume of commodity trading has been steadily shrinking for some time past, raising serious financial and economic problems for the various exchanges, yet it is felt that they have by no means outlived their usefulness and a program of coordinated effort may result in one strong organization.

Advantages which may be expected to result from such a move include the opportunity for a strong public relations program and a more influential voice before the Administration, more comprehensive statistical data, operating economies through the elimination of duplicating personnel, wire systems, and the like, without curtailing or impairing present service, and the value of associate memberships in all exchanges for those who now participate in only one.

THE PURE

PURE THREE POINT LUBRICATION
A Complete Line of Industrial Petroleum Products



A Pure Oil engineer will help solve your lubrication problems. Write today.

OIL CO.
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toward Big Savings
when it's one of these 3
Simonds Tool Bits**

CUT DOWN on grinding, tool-failure, and labor costs for extra set-ups . . . standardize on Simonds Tool Bits. For any job in your shop, you can pick the right bit from these 3:

Super Cobalt: A long-lived bit for extremely tough or hard materials.

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And each one is made from Simonds' own steel . . . *to cost you less per bit in the long run.* Order from your dealer or write:



SIMONDS

SIMONDS SAW & STEEL CO.

**METAL CUTTING
TOOLS**

FITCHBURG, MASSACHUSETTS

When writing Simonds Saw & Steel Co. please mention Purchasing

Constructive Purchasing Policies

By F. W. STAUDT

Purchasing Agent, Staudt's Bakery

A PURCHASING AGENT is one who is endowed with the authority to make purchases and the purpose of a Purchasing Department is to make sure that the needed material for the operation of the plant or institution is secured. In deciding upon policies, the Purchasing Department must keep in mind the primary purpose, which is the preservation of the operation of the institution from interruption. There are

seven principal general policies for buying all items secured. They are:

- 1—Purchasing by known requirements.
- 2—Purchase for specified future periods.
- 3—Purchasing on market trends.
- 4—Contract for a future period.
- 5—Purchase by quantity orders and scheduled releases.
- 6—Purchase of small items by group contract.
- 7—Speculative purchasing.

As you know, the old rule which has been laid down for constructive pur-

chasing has been to buy at a low price and sell at a high price. This is a rule which has always worked extremely well for those who have been able to put it into action. The main difficulty in the past has been that when prices decline most people become too pessimistic and curtail their purchasing at the very moment when prices are near their low. Having followed the market down, too many buyers in the past have sat back in disbelief when prices have begun to advance. Usually it has taken some time to convince them that their previous estimate of how far the decline could go was wrong. Eventually, however, and usually after a substantial rally, they become convinced that the low has been seen and begin to become more optimistic. This leads to the spectacle that we have all witnessed frequently, of a large number of buyers rushing in to make their purchases when a price movement is near its top. In other words, instead of operating according to the rule quoted above and thus amassing substantial profits, some of the non-constructive buyers manage to remain about a half cycle behind, selling at the bottom and buying at the top.

Right at the moment we are in the midst of a political campaign. This is no place to enter into political arguments, which are always lengthy, even if not acrimonious. But it is not beside the point to mention the fact that the Government, however much we may like or dislike some of its other actions, has gone out of its way to make it easier for us to apply this rule of buying at the bottom and selling at the top.

It has given a loan to the farmers which should make it very plain to us when the bottom is approaching in the case of many agricultural commodities. Certainly when wheat or cotton futures, for example, get down to the loan level or a little below, elementary common sense indicates that farmers are going to take advantage of the loan to hold these commodities back. Artificial this may be, but it nevertheless results in a drying up of the immediate supply and restrains prices in their downward course. As the amount going into the loan increases, all of us are familiar enough with the usual figures on consumption and free supply to be able to calculate in advance just about when it will have to be withdrawn from the loan in order to meet current demands. In other words, we can tell when prices will have to go up.

But even with loans on agricultural commodities, buying has not become foolproof. We had an example last Spring, you will recall, of a collapse in speculative markets which resulted from unexpected developments across the ocean. At the present time, we have a tremendous armament program developing in this country which is due to greatly increase purchasing power in the

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United States in the next few years. Some of you will ask me whether or not the expansion in armament defenses does not mean a lower standard of living; the answer is that it certainly will be injurious to living standards when it is paid for, but that it is being financed now by borrowing against the future. At any rate, the point I am making here is that it is still necessary for the constructive buyer to keep himself familiar with foreign developments.

In fact, if I were to be permitted to attempt an improvement over the simple buying rule mentioned above, I would say that the most constructive purchasing policy is to keep fully posted at all times on all possible factors that influence consumption and prices, and to be very open-minded about the nature of these influences. The day has passed when we can simply sit back and believe that all we need to take notice of are developments inside the United States.

It was the consensus of a group of leading Wall Street economists last week that defeat of Britain would bring about a 10 to 20 point decline in the Federal Reserve Board index of industrial production. If the British are able to continue the fight, and to make a showing which warrants belief in their ability to hold up their end for a considerable further period, opinion was that the same index might rise as high as 130 between now and the end of the year. In other words, the extremes of the range on which this group generally agreed were 103 and 130, compared with a current level of around 123.

The economics division of the Defense Commission, which has been doing considerable work on a forecast of industrial production for 1941, is near enough the end of its job to conclude that the average for next year should be about 5% above the 1940 level. So our buying policies to a certain extent are dependent upon foreign developments.

The buying policy recommendation of Fred Heaslip and the consulting members of the N.A.P.A. Business Survey Committee is "a liberal covering on special items which warrant it but keeping commitments for the regular, domestically produced materials and merchandise to three months beyond actual requirements." This is the policy that I have pursued for the past year—carry thirty days' supply in stock, have thirty days in transit, and keep thirty days booked ahead.

Zelomek says that the best policy to pursue at the present is one of conservative but not timid coverage against legitimately expected needs. This implies having ample supplies on hand so that it will not be necessary to follow sharp price advances very far if they should occur. It also suggests that some purchasing power should be held back to take advantage of any sharp declines which might occur. This is a compromise policy which the present situation seems to suggest. It is a general policy, and it should not be overlooked, that each commodity must be considered separately.

Address at the quarterly meeting of the Carolinas-Virginia Association of Purchasing Agents, Greensboro, N. C., September 14th.



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Among the ASSOCIATIONS

INSURANCE COMPANY BUYERS MEET AT HARTFORD

The Association of Insurance Company Buyers held its first meeting of the 1940-1941 season at the Wampanaug Country Club, West Hartford, Conn., September 10th. The afternoon was spent at golf, followed by a dinner meeting at the clubhouse. F. L. Rowland, Executive Secretary of the Life Office Management Association, New York,

spoke on "The Relation of Office Management to Purchasing."

The Association was organized in 1933, and holds eight meetings annually, in Hartford, Springfield, Worcester and Boston. The member companies spend upwards of three million dollars annually for printing and stationery, furniture, fixtures and advertising, but do not engage in cooperative buying.

The officers for the current year are: *President*, W. B. Joyner of London &

Lancashire Indemnity Co. of America, Hartford; *Vice President*, A. R. Hobbs of Massachusetts Bonding and Insurance Co., Boston; *Secretary*, J. A. Young of Monarch Life Insurance Co., Springfield; *Treasurer*, W. E. Lutz of Caledonian Insurance Co., Hartford; *Executive Committee*, A. W. Johnson of State Mutual Life Assurance Co., Worcester, G. W. Woodward of Factory Insurance Association, Hartford, and J. P. Camp of Phoenix Mutual Life Insurance Co., Hartford.

♦ ♦ ♦

INDUSTRIAL EXHIBIT AT BALTIMORE

The Fifth Annual Manufacturers' Products Exhibit, sponsored by the Baltimore Association, will be held at the Lord Baltimore Hotel in that city October 22, 23 and 24. There will be approximately 100 booths displaying latest developments in industrial and office supplies and equipment, several of which will be demonstrated in operation at the show. Prizes are offered for the most informative, most attractive and decorative booths. The Exhibitors' Breakfast meeting will be held on the morning of October 23rd, with a prominent speaker to discuss the current industrial outlook.

Frank H. Carter of the Maryland Drydock Co. is General Chairman of the Exhibit Committee, assisted by the following: *Vice Chairman*, J. Herbert Gaston, City Purchasing Agent; *Booth Reservations*, C. B. Sherman of New Amsterdam Casualty Co.; *Attendance*, J. L. Childs of Burns Bottling Works. *Traffic*, Morton S. Busick of Lord Baltimore Hotel, and G. M. Neukam of Pen Mar Co., Inc.; *Breakfast*, T. B. Athey of W.P.A., and A. H. Schultz, Jr., of Revere Copper & Brass, Inc.

♦ ♦ ♦

EXHIBITS SCHEDULED FOR CHICAGO AND CLEVELAND

The Twelfth Annual Products Exposition of the Chicago Association will be held November 13 and 14, at the Hotel Sherman. Participation in the exhibit is limited to companies holding membership in the Association or advertising in the *Chicago Purchaser*. A luncheon meeting and banquet session will be held in conjunction with the show, and trophies will be awarded for the most attractive, most informative, and most original exhibits.

The Midwest Purchasing Exhibit, sponsored by the Cleveland Association and restricted to advertisers in *Midwest Purchasing Agent*, is scheduled for November 14, 15, and 16.

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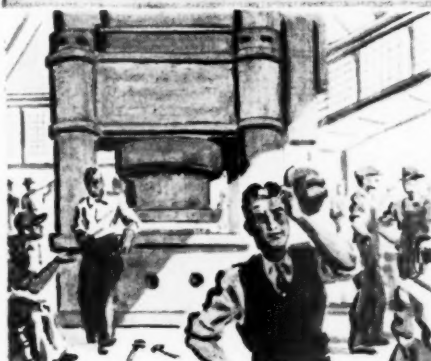
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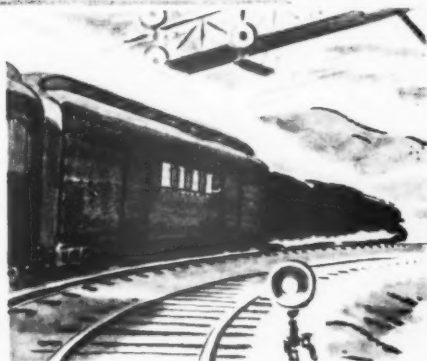
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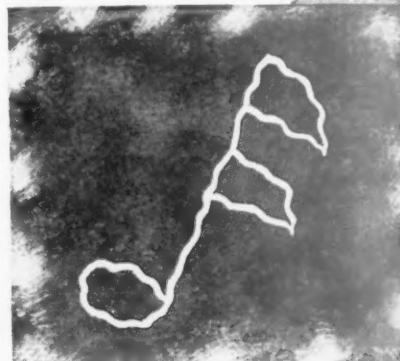


1. Re-armament production becoming a nightmare? With machines gobbling material faster than you can get it delivered, this case history will be worth remembering.

A recalcitrant hydraulic press in a large Bridgeport, Conn. plant recently decided to break down . . .



2. Needed for emergency repairs were 2 lengths of steel tubing. The order was phoned to Frasse, New York, at 10:45 a.m.—material was on its way on the 2 p.m. train. Customer was advised by wire . . .



3. And then came the sour note. Maintenance engineers had ordered the wrong size. Customer phoned again at 4 p.m., thanked Frasse for the service . . .



4. . . . And placed a second emergency order for the correct size. New tubes were shipped to Grand Central Station by special truck, placed on the next outgoing baggage car.



5. Frasse Connecticut representative was advised by telephone. He relayed information to customer, met the train at Bridgeport, and delivered the tubes himself at 9:25 p.m.

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Place your next order for mechanical steels with Frasse. Whatever your speed—Frasse will match it, stride for stride.

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EDUCATIONAL PROGRAM AT BUFFALO

The Educational Committee of the Buffalo Association, under the chairmanship of Wilbur C. Volk, has arranged for a series of lectures on purchasing topics, to be given at the University of Buffalo, by members of the University faculty. The series, which is open to members of the Association and workers in their departments, started October 2nd.

SEPTEMBER 3

OAKLAND—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Speaker: Mayor Frank S. Gaines of Berkeley, "Public Apathy."

SEPTEMBER 5

SAN FRANCISCO—Luncheon meeting of the *Northern California Association*, at the Palace Hotel. Speaker: John B. Knox, "Three Major Enemies to Business."

BIRMINGHAM—Dinner meeting of the *Birmingham Association*, at the Redmont Hotel, followed by a visit to the Connors Steel Co. plant, for a demonstration of the electric furnace process of steel making and the rolling of a variety of small finished products.

SEPTEMBER 9

BRIDGEPORT—First fall meeting of the *Salesmen and Purchasing Agents Association*, at the Stratfield Hotel. Following a brief business session, a motion

picture from the U. S. Bureau of Mines and a sporting film were shown.

READING—First fall meeting of the *Reading Association*, at the Iris Club. Speaker: H. W. Van Dyke, metallurgist of the Doehler Die Casting Company, "How Die Castings Are Made."

SEPTEMBER 10

MILWAUKEE—Dinner meeting of the *Milwaukee Association*, at the Elks Club. Speaker: Prof. Lee E. Lawrence, Chairman of the Department of History and Political Science, Milwaukee Extension Center of the University of Wisconsin, "Political and Historical Significance of World Events, and Their Effect Upon the Economics of Purchasing."

NEW YORK—Dinner meeting of the *Metropolitan Purchasers' Assistants Club*, at Midston House. Speaker: A. W. Zelomek, economist of the International Statistical Bureau and Fairchild Publications, "America in a Changing World." Forum led by Kenneth L. Austin, business reporter for the *New York Times*, on "How to Read the Financial Page of a Newspaper." Plans were announced for an inspection visit to the newest luxury liner *America*.

TULSA—Annual dinner party of the *Tulsa Association* as guests of Baker Oil Tools, Inc., at the Roof Garden, Tulsa Club. Musical program, games, prize drawings, and a question box conducted by "Prof. Q."

OAKLAND—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Motion picture, "Hurricane's Challenge," shown through courtesy of the Pacific Telephone & Telegraph Co.

ROCKFORD, ILL.—Dinner meeting of the *Rock River Valley Association*, at the Faust Hotel. Colored sound film, "The Steel of the Ages," shown through courtesy of the Allegheny-Ludlum Steel Co., with explanatory comment by representatives of the company. Commodity reports on steel, non-ferrous metals, lumber, shipping containers, iron and steel castings, chemicals, coal, coke, and fuel oil.

SEPTEMBER 11

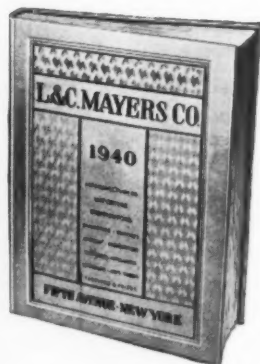
ST. PAUL—First fall meeting of the *Twin City Association*, at the St. Paul Athletic Club. Plans for the association year were presented by the standing committees.

SPRINGFIELD, OHIO—Dinner meeting of the *Springfield Association*, at the Heaume Hotel. Round table discussion of commodity trends and report on new industry in Springfield. Eugene Saum, of Roth Office Equipment Co., was named secretary of the Association for the balance of the year, succeeding Frank D. Smith of Lagonda National Bank, who is obliged to give up the office on account of ill health.

An unsolicited letter from a **LEADING "P.A."**

"Our business relations have always been 100% and we have yet to have one cause for complaint in any type of business transaction in our experience with your company which goes back over a number of years."

One swallow may not make a summer, but it's significant that "P.A.'s" have been relying on Mayers for 28 years for prompt and dependable service on prizes, gifts, safety awards, presentations and personnel needs.



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Today, the new "Soft-Tuff" ScotTissue Towels are used in many great industrial plants, as well as

thousands of offices, throughout the world. Their use has increased about 40% in a few months! Let us demonstrate to you their amazing comfort and economy.

The Scott Washroom Advisory Service will help arrange washrooms comfortably, hygienically and at low cost. It will suggest ways to improve traffic conditions, reduce waste and increase employee and customer good will. Write for details! Scott Paper Co., Chester, Pa.

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SEPTEMBER 12

BIRMINGHAM—Luncheon meeting of the *Birmingham Association*. Speaker: R. H. Bumgardner, Manager of the Safety and Casualty Bureau, Tennessee Coal, Iron & Railroad Co., "Safety."

LOS ANGELES—Dinner meeting of the *Los Angeles Association*, at the Elks Club. Speaker: Hollis R. Thompson, Vice President of American Airlines, Inc., and formerly City Manager at Berkeley, Cal., "The Old Hitching Post." A colored sound film on "The Development of the Maritime Industry on the Pacific Coast" was shown through courtesy of the American-Hawaiian S.S. Co.

DALLAS—Luncheon meeting of the *Dallas Association*, at the Adolphus Hotel. Speaker: Robert E. Cole of Pollock Paper & Box Co., "Paper and Paper Products."

SAN FRANCISCO—Luncheon meeting of the *Northern California Association*, at the Palace Hotel. Speaker: Dr. Chauncey D. Leake, Professor of Pharmacology and Librarian, University of California Medical School, "Industrial Toxicology."

OIL CITY—Dinner meeting of the *Northwestern Pennsylvania Association*, at Hawthorne Hedge, Pleasantville.

Speaker: W. H. Lutz, technical director of Pratt & Lambert, Inc., Buffalo, "Paint."

CHICAGO—Dinner meeting of the *Chicago Association*, at the Hotel Sherman. Speaker: Royal F. Munger, financial editor of the *Chicago Daily News*, "Economic Trends."

SEATTLE—Dinner meeting of the *Washington Association*, at the Olympic Hotel. Speaker: Rev. J. Warren Hastings of the University Christian Church, "Keeping Business Morale in Tune with the Times." Joseph C. Blucher of Fisher Flouring Mills Co., presided over a round table discussion period on "General Business Conditions—Past, Present, and Future Price Trends." Discussion leaders were Charles W. Gilpin of Pacific Fruit & Produce Co., K. A. Knudson of Everett Pulp & Paper Co., and Harry H. Miller of Electrical Products Consolidated.

SPRINGFIELD—Golf tournament, bridge, and dinner dance of the *Western Massachusetts Association*, at the Springfield Country Club. The committee in charge included S. J. Kennedy, W. M. Case, and R. A. Charpentier.

SEPTEMBER 13

PORTLAND—Luncheon meeting of the *Oregon Association*, at the Mallory Hotel. Speaker: Major Ezra B. Whitman, Chairman of the Maryland State Highway Commission, "Highway Problems."

SEPTEMBER 13-14

GREENSBORO, N. C.—Quarterly meeting of the *Carolinas-Virginia Association*, at Sedgefield Inn.

At the Friday evening meeting, Dr. W. T. Laprade, Professor of European History, Duke University, spoke on "Economic Changes Resulting From the European War."

The program on Saturday morning included the following addresses: Brown Mahon of Duncan Mills, Greenville, "What Management Expects of Purchasing"; Robert King of South Carolina State Highway Department, Columbia, "Self Examination in Purchasing"; F. W. Staudt of Raleigh, "Constructive Purchasing Policies"; J. K. Knowlton, economist, Charlotte, "World Reorganization."

The meeting concluded with a banquet session Saturday evening, where prizes were awarded for the golf tournament.

SEPTEMBER 16

AKRON—Dinner meeting of the *Akron Association*, at the University Club. Speaker: Dr. M. A. Brumbaugh, Bureau of Business and Social Research, University of Buffalo, "The Hanev Barometer Chart."

SEPTEMBER 17

PITTSBURGH—More than 250 members and guests of the *Pittsburgh Association* observed the 25th anniversary of

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● For years fence posts have been merely adaptations of existing structural shapes. But now Page has developed a line post for chain link fence exclusively—the "wing channel" post. This new post provides greater strength, longer life and neater appearance. Properly erected on these superior posts, your Page Fence is up to stay—a guaranteed job.

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that organization at a gala dinner meeting at the William Penn Hotel. Fourteen past presidents were among the guests of honor, including Robert McMillan, who led the association in the second year of its existence. Others at the head table included present and past officers of the N.A.P.A., Mayor Cornelius D. Scully of Pittsburgh, the presidents of the Chamber of Commerce and Junior Chamber of Commerce, and the editor of *PURCHASING*. Guests were present from the Cleveland, Akron, and New York Associations.

Louis M. Potter of Vanadium Alloys Steel Co., President of the Association, gave the address of welcome, turning the meeting over to Irvin E. Walton of the Heppenstall Co., Chairman of the evening.

A feature of the evening was the presentation of a check for \$1000 to found the E. L. McGrew Memorial Students Loan Fund at Carnegie Institute of Technology. The fund is named in honor of the late E. L. McGrew, who, as Purchasing Agent for the Standard Underground Cable Co., was instrumental in the founding of the Association and served as its first president, as well as becoming the second president of the N.A.P.A., serving two terms in that office. The fund is to be administered by the Trustees of Carnegie Institute for student aid loans, to be made to native American students of promise, and bearing no interest during undergraduate years. The McGrew Memorial Committee consisted of A. Davia of Dravo Corp., Chairman, I. E. Walton of Heppenstall Co., and N. J. Crain of United Engineering & Foundry Co. J. B. Connally, Manager of Purchases for the Mesta Machine Co., made the presentation through the hands of Mr. McGrew's son, now Assistant Purchasing Agent of the General Cable Co., New York. Dr. Robert E. Doherty, President of Carnegie Institute of Technology, accepted the fund for the Institute.

Speaker of the evening was Dr. J. Anton de Haas, William Ziegler, Professor of International Relationships at Harvard University, who discussed "The International Situation and Its Effect on American Business."

The committee in charge of the Silver Anniversary meeting was headed by P. B. Zoeller of A. M. Ryers Co., assisted by A. A. Garland of American Radiator & Standard Sanitary Corp., and H. E. Cooley of National Supply Co.

NEW YORK—Opening fall meeting of the *New York Association*, at the Builders' Exchange Club. Speaker: Charles S. Morris, President of the Metropolitan Fireproof Warehouse, Inc., and Past District Governor of Rotary International, "Can We Americans Meet the Challenge?" Sound Movie, "The Making of Steel," shown through courtesy of the United States Steel Corp. A surprise feature of the evening was the presentation of a testimonial and gift to J. H. Leonard and Miss Siebert of the Association office, in recognition of their completion of twenty years in the service

of the Association. One-minute commodity reports were given by members on coal, fuel oil, industrial chemicals, non-ferrous metals, paper, steel and textiles. The meeting was preceded by an afternoon forum on current purchasing policy and procedure, led by J. L. Crosbie.

SEPTEMBER 18

ST. LOUIS—Dinner meeting of the *St. Louis Association*, at the Hotel York. Speaker: George A. Renard, Executive Secretary of the N.A.P.A., "National Defense."

COLUMBUS—Fall outing and dinner meeting of the *Columbus Association*, at

Nelsonia, country home of Richard Evans of Columbus Coated Fabrics Corp.

ERIE—Tenth Anniversary dinner of the *Erie Association*, at Sunset Inn. Speaker: W. O. Preston, sales manager of the National Tube Co., Pittsburgh, "The Arteries of Industry." His talk was illustrated with motion pictures showing the manufacture of seamless steel tubing.

SEPTEMBER 19

CLEVELAND—Dinner meeting of the *Cleveland Association*, at the Hotel Cleveland. Charles J. Stillwell, Presi-



Responds to Your Needs



<h3 style="text-align: center;">ANALYSIS</h3> <p>Thomas produces cold rolled strip steel with controlled analysis. This method dependably fulfills your analysis requirements and greatly facilitates your drawing and forming operations. Uniform analysis provides you the opportunity for higher production and lower manufacturing costs.</p>	<h3 style="text-align: center;">TEMPER</h3> <p>With modern facilities for rolling and heat treating, Thomas produces cold rolled strip steel of uniform and desired temper. Drawing and forming properties, surface qualities, and grain structure are combined in Thomastrip to give high-grade steel performance. Thomastrip matches your product and production requirements.</p>
<h3 style="text-align: center;">GAUGE</h3> <p>Thomastrip has gauge accuracy and uniformity. These qualities provide dependable drawing operations with speedy production. Thomas specializes in the manufacture of cold rolled strip steel. Unusually close supervision is given to the steel in process.</p>	<h3 style="text-align: center;">FINISH</h3> <p>Finish, whether coated or uncoated, is one of the outstanding qualities of Thomastrip. The electro coatings are used for final finish as well as a base for further plating. They will not crack nor peel. Brass, bronze, copper, nickel, and zinc coated finishes are available.</p>

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dent of the Warner & Swasey Co. and a Past President of the National Machine Tool Builders Association, spoke on the program of the machine tool industry, facing the enormous task of meeting the needs of manufacturing industry and at the same time expediting the national military defense program.

BIRMINGHAM—Luncheon and plant visit of the *Birmingham Association*, at the American Cast Iron Pipe Co. Demonstration of the centrifugal process of manufacturing cast iron pipe in one of the largest plants in the industry.

OAKLAND—Annual joint dinner meeting of the *Northern California As-*

sociation and the East Bay Manufacturers' Committee of the Oakland Chamber of Commerce, at the Hotel Leamington.

NEW SALEM, N. Y.—September clambake of the *Eastern New York Association*, at Picard's.

SEPTEMBER 20

SEATTLE—Members of the *Washington Association* were guests at a special meeting of the Manufacturers' Association of Washington, at the Chamber of Commerce. A feature of the meeting was an exhibit of Washington products. Plans for the fall program were outlined, including work on na-

tional defense coordination and state legislation. A "Buy Washington" program was broadcast from the banquet hall.

PORTLAND—Luncheon meeting of the *Oregon Association*, at the Mallory Hotel. Speaker: Rev. O. K. Davidson of the Bethlehem Lutheran Church, Chaplain of the Oregon National Guard.

SEPTEMBER 24

HUNTINGTON, W. VA.—Sixth anniversary dinner meeting of the *Tri-State Association*, at the Hotel Prichard. Speaker: Hon. Harry Collins Spillman, "Drafting of Industrial Plants for Preparedness for War." Arthur G. Hopcraft of Cleveland, Past President of the N.A.P.A., served as toastmaster.

OAKLAND—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Speaker: Folger Emerson, Deputy District attorney, Alameda County, "Functions of the District Attorney's Office."

BRISTOL—Sheep-bake at the Pavilion, Lake Compounce, followed by the regular meeting of the *Connecticut Association*. E. S. Cobb of Sid. Blumenthal & Co. led a general discussion introduced by the following speakers: Arthur Evans of Chase Brass & Copper Co., "Coal"; D. W. Williams of R. Wallace & Sons, "Fuel Oil"; Mary J. Wellman of G. & O. Mfg. Co., "Inventory Turnover and the Purchasing Agent's Responsibility Toward It." A technicolor sound film entitled "A New World Through Chemistry" was shown by courtesy of E. I. du Pont de Nemours & Co., with explanatory comment by James K. Hunt.

TULSA—Dinner meeting of the *Tulsa Association*, at the Chamber of Commerce. Speaker: C. W. Cordry of Kansas City, truck and bus tire manager of the B. F. Goodrich Co. Mr. Cordry discussed Ameripol, "America's Liberty Rubber," a new synthetic product developed jointly by the Goodrich Co. and the Phillips Petroleum Co., and capable of wide application in the manufacture of tires and for other purposes.

SEPTEMBER 25-26-27

SYRACUSE—Sixth Annual Industrial Products Exhibit of the *Syracuse & Central New York Association*, at the Onondaga Hotel. Seventy-five attractive exhibits displayed latest developments in labor saving equipment for factory and office, representing a comprehensive range of industrial products. There was a private showing of the displays, for the benefit of Association members, their assistants and executive associates, on Friday afternoon and evening, followed by a buffet supper. The exhibit was opened to more general attendance of Thursday and Friday afternoon and evening.

The Exhibitors' Luncheon took place Thursday noon.

The Annual Banquet was held Friday evening. George L. McCaffrey of Owen-

This workman is using a 5/16-24 "G.T.D. Greenfield" Ground Thread Tap, a "G.T.D. Greenfield" Tap Wrench and a "G.T.D. Greenfield" Plug Thread Gage.



Here's a Tough Job!



For Accuracy:
"G.T.D. Greenfield"
Precision Ground
Taps and Precision
Thread Gages.

This is chrome molybdenum steel, No. 46S23, tensile strength. 180,000 lbs. It's an elbow assembly for aeroplane landing gears. Production is only 60 holes per tap, and precision ground thread taps have to be sharpened after every 10 holes. Former production was only 35 holes per tap with 6 holes between grinds.

"Greenfield" taps excell on tough assignments and will turn in equally superior performances on easier jobs. Don't you want to arrange a test?

GREENFIELD TAP & DIE CORPORATION, GREENFIELD, MASS.

Detroit Plant: 2102 West Fort St.

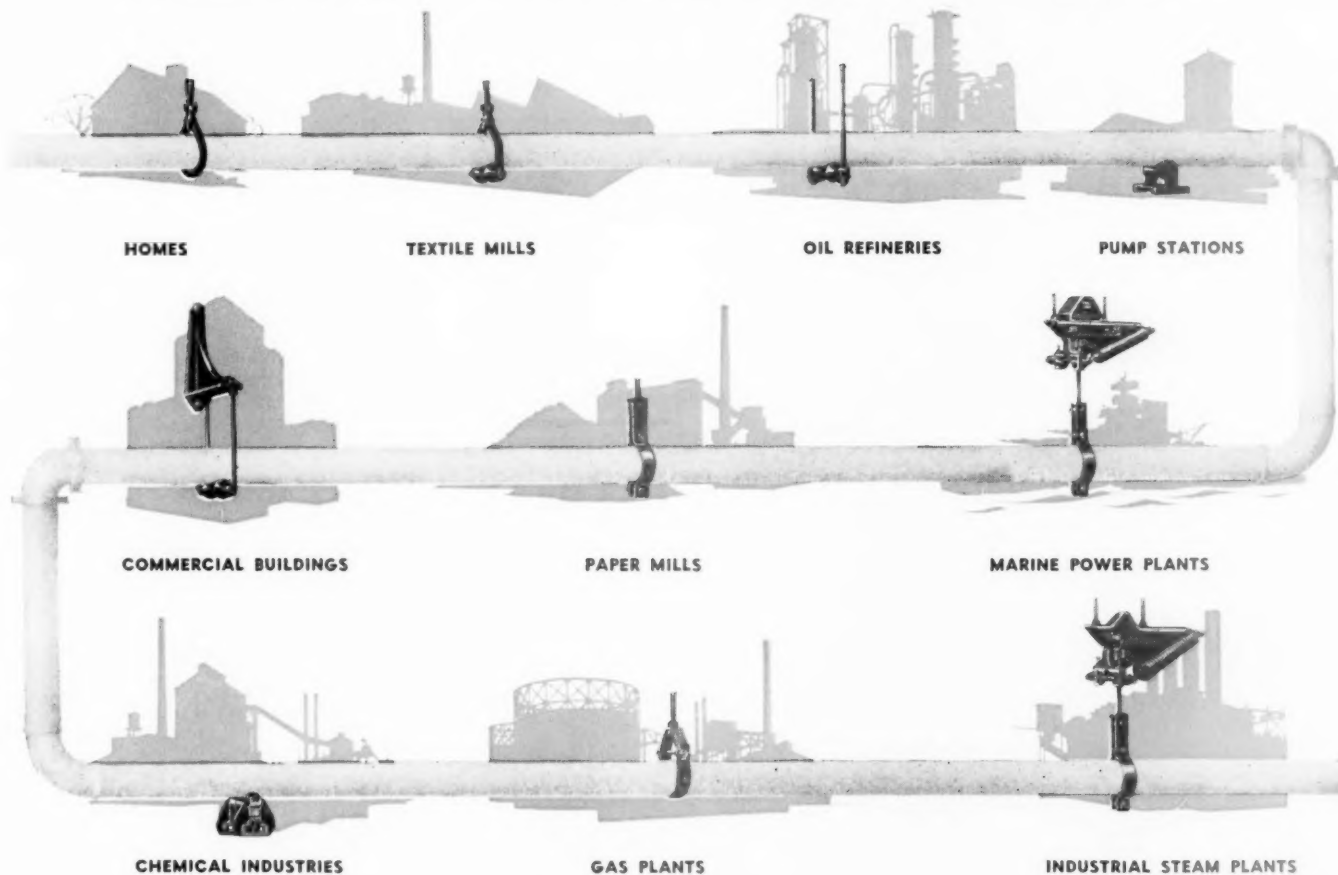
Warehouses in New York, Chicago, Los Angeles and San Francisco
In Canada: Greenfield Tap & Die Corp. of Canada, Ltd., Galt, Ont.



TAPS • DIES • GAGES • TWIST DRILLS • REAMERS • SCREW PLATES • PIPE TOOLS

When writing Greenfield Tap & Die Corporation please mention Purchasing

SCIENCE IN AN UNEXPECTED ROLE...



Pipe Hangers are now *Engineered* for each specific service

NO longer is pipe hanging a haphazard matter of fastening pipes "somewhere, out of the road." Every industry has individual requirements... every type of system its vagaries. At one extreme is the domestic water system involving chiefly dead weight. At the other, pulsing steam power lines where thermal-movement and vibration demand scientific control.

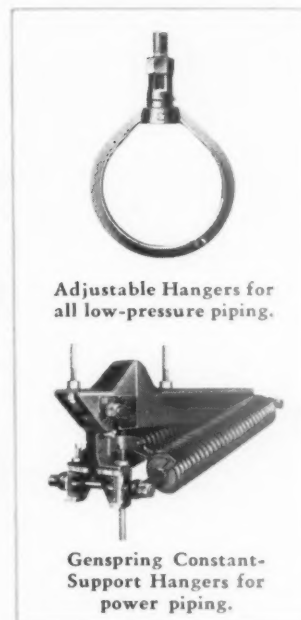
Until Grinnell engineers attacked these problems, pipe hanging was given little attention. Today, Grinnell produces adjustable hangers in thousands of combinations to hang *any* piping *anywhere*.

This is merely one example of improved services developed by Grinnell.

Others include prefabricated piping, automatic sprinkler fire protection, Thermolier unit heaters, Amco industrial humidifiers, extra-quality pipe fittings. Write for reference folder on Adjustable Hangers or other Grinnell products. Grinnell Co., Inc., Executive Offices, Providence, R. I. Branch offices in principal cities of U. S. and Canada.

Grinnell Company, Inc. . . . Grinnell Company of the Pacific . . . Grinnell Company of Canada, Ltd. . . . General Fire Extinguisher Company . . . American Moistening Company . . . Columbia Malleable Castings Corporation . . . The Ontario Malleable Iron Company, Ltd.

GRINNELL
WHENEVER PIPING IS INVOLVED



Adjustable Hangers for all low-pressure piping.

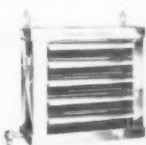
Genspring Constant-Support Hangers for power piping.



Pipe Fittings



Automatic Sprinklers



Thermolier Unit Heaters



Prefabricated Piping



Amco Industrial Humidifiers

When writing Grinnell Company, Inc. please mention Purchasing

Dyneto Div., U. S. L. Battery Corp., President of the Syracuse Association, gave the address of welcome. Guest speakers were George E. Price, Jr., of the Goodyear Tire & Rubber Co., Akron, and Glenn C. Parsons of The Arner Co., Buffalo, President and Vice President respectively of the N.A.P.A. C. J. Kuckhoff, Association Vice President and General Chairman of the Exhibit Committee, presented awards for the most informative and educational booths.

The committee assisting Mr. Kuckhoff included: Co-Chairman, M. E. Jeannings and F. J. Quinn; Program, W. R. Donovan, C. F. Marchant, and J. V. McCarthy; Publicity, H. C. Brown, M. D. Low, and H. C. Cork; Registration,

R. C. Hinman, E. R. Francis, and E. E. Thompson; Attendance, Chessell King, W. W. Hoyt, and G. H. Johnson.

SEPTEMBER 26

LOS ANGELES—Luncheon meeting of the *Los Angeles Association*. An "Information Please" program was conducted by E. H. Weaver of Union Oil Co.

SAN FRANCISCO—Luncheon meeting of the *Northern California Association*, at the Palace Hotel. Speaker: Jack Major, "The Colonel from Kentucky," presented by the Union Oil Co. of California.

CLEVELAND—Fall golf outing of the *Cleveland Association*, at the Acacia Country Club.

BIRMINGHAM—Luncheon meeting of the *Birmingham Association*, at the Redmont Hotel. Speaker: Judge Hugh A. Locke, "The Constitution and the War."

1 1 1

MILWAUKEE EXHIBIT

The Fourth Industrial Products Exhibit of the *Milwaukee Association* is scheduled for October 22 and 23, at the Hotel Schroeder, and a diversified and instructive display is promised. The two-day program includes a banquet meeting on Tuesday evening, at which a prominent business authority will discuss "National Conditions in Industry." The Exhibit Committee includes: General Chairman, Joseph F. Bode of Briggs & Stratton Corp.; Publicity, Gilbert L. Hartman of The Oilgear Co., Henry A. Steffen of Wadhams, and Lyall C. Stip of Kimberly-Clark Corp.; Exhibits, C. E. Bradley of Loeffelholz Co., E. L. Janke of Jos. T. Ryerson & Sons Co., E. L. Wustrack of A. Kieckhefer Elevator Co., and L. M. Sanford of Motor Castings Co.; Banquet, Herbert A. Frank of Sterling Wheelbarrow Co.; Information, W. E. Radke of A. Geo. Schulz Box Co., and A. O. Hinz of General Malleable Corp.; Treasurer, T. H. Schultheis of John Rauschenberger Co.; Secretary, E. H. Jones of E. R. Wagner Mfg. Co.

1 1 1

PURCHASING COURSES AT CHICAGO

DePaul University College of Commerce, Chicago, is offering a course in purchasing this semester, under the leadership of Harold E. Anderson of the Allen B. Wrisley Co.

The Central Y.M.C.A. College of Chicago is also offering a purchasing course. Harry W. Knight, Purchasing Agent for the Village of Winnetka, is instructor. There will be special lectures by H. L. Brueggemann, Purchasing Agent of the Acme Steel Co. and President of the Chicago Association, John P. Sanger, Vice President and Director of Purchases for United States Gypsum Co., and Joseph W. Nicholson, City Purchasing Agent at Milwaukee and a past president of the N.A.P.A.

The Chicago Association is offering two prizes, of fifty dollars each, for the best paper on a purchasing subject to be assigned, prepared by students in these respective courses.

1 1 1

NEWSPRINT OUTPUT IS HIGH

North American production of newsprint during the first eight months of 1940 is substantially ahead of 1939. Canadian production, which represents the bulk of the output, was 26.9% greater than in the corresponding period a year ago, United States production was 8.7% greater, and Newfoundland production was 19.1% greater.



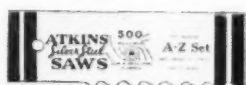
THERE'S YOUR SAVINGS

Look how **ATKINS**

Bent the Cost Curve Down

Atkins Metal Cutting System

● Let figures tell the story in your plant. Give Atkins Saws a trial and watch the results. You'll be impressed by the definite, measurable production economies on every metal sawing job done with Atkins Blades. You'll get straighter, faster cuts—and more cuts per blade—real savings that show up on the profit side of the ledger.



ATKINS SUPER-POWER BLADES

These new blades allow machine production speed you never thought possible. Blade of genuine Silver Steel—new tooth design—new patented set.



ATKINS HAND HACK SAWS

Two types fast-cutting, edge-holding saws: "Flexible Back Hard Edge" and "All Hard Spring Temper." Complete range of widths, gauges, spacings, tempers.



ATKINS CIRCULAR METAL SAWS

Famous "clearance grinding." Solid tooth metal milling saws. Cool-running high-speed accuracy.

Full Details on Atkins Metal Cutting System on Request

ATKINS Silver Steel **SAWS**

E. C. ATKINS AND COMPANY, 446 S. Illinois St., Indianapolis, Indiana

When writing E. C. Atkins and Company please mention Purchasing



ARISTOLOY STEELS

*All ARISTOLOY executives are
located at the plant—for quicker action and closer
cooperation on your alloy steel requirements*

WE TALK IT OVER ACROSS THE DESK . . . NOT ACROSS THE COUNTRY

All Aristoloy Executives and Department Heads have their working headquarters where Aristoloy Steels are made—at our Warren, Ohio plant. Talking it over across the desk, there's an easy, every-day interchange of information and experience. Centralized organization makes for closer cooperation, with less chance for error, delay, and misunderstanding. Aristoloy steel makers make steel *on the job*—not by remote control.

COPPERWELD STEEL COMPANY, WARREN, OHIO

ARISTOLOY S.A.E. ALLOY BILLETS AND BARS; AIRCRAFT QUALITY
STEELS; OXIDATION AND CORROSION RESISTING
STEELS; TOOL AND SPECIAL STEELS; STAINLESS STEELS

Visit us at the
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Stop at our Aristoloy
Exhibit—Booth F-20—
and play "Aristoloy".
You can't lose.

Prizes for high scores

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HENDERSON WARNS AGAINST PRICE ADVANCES

In a formal statement addressed to the lumber industry, but regarded as equally applicable to all industries actively engaged in construction and other defense work, Leon Henderson has warned against using the defense program as an excuse for price advances. Mr. Henderson is in charge of the price stabilization division of the National Defense Advisory Commission. The statement says in part:

"The defense program does not justify any increase in lumber prices, and recent advances have been due to unfounded rumors of actual defense needs in the

next twelve months. The fact that several contracts for cantonments were recently awarded by the War Department has given rise to rumors of defense requirements far beyond the Government's actual needs. These requirements are well within the bounds of the normal capacity of the industry.

"In view of the known direct requirement of the Army and Navy, it is hoped that these requirements will enter the market in a more orderly fashion to prevent erratic movements of prices in the future. In the meantime the Defense Commission has received assurance from the Maritime Commission that sufficient bottoms are available for intercoastal

lumber movement at any time West Coast shippers require additional cargo space."

The situation which prompted this statement is believed to have been occasioned by a call for bids early in September, involving approximately thirty-five million feet of lumber for the War Department, calling for delivery of four million feet in Massachusetts within a week and the balance within six weeks. The lumber is to be used for the construction of cantonments to accommodate 25,000 conscripts.

It is pointed out by members of the industry that mill shipments for such an order could not be made until the third week of the contract; deliveries for the first two weeks would have to be drawn from retail yard stocks. The first week's requirement of four million feet is said to represent a trainload roughly two miles long.

It is further stated that some manufacturers were not apprised of this call for bids until two days before the scheduled opening, and that dealers who have entered bids on the Government's needs must necessarily tie up their stocks awaiting the decision of the purchasing officers, so that they will not be in the position of being caught short and having to go out themselves to purchase lumber to fill their contracts.

Thus, while it is true that the basic statistical position of the industry is not at all alarming, and while there have been some instances of large orders for some lumber items above current quotations, apparently induced by fear psychology, spokesmen for the industry contend that governmental buying methods, seeking to negotiate for vast quantities of material with little advance notice, are primarily responsible for the unsettled market conditions criticized by Mr. Henderson.

The director of Price Stabilization, recognizing the difficulty of manufacturers in this industry, when called upon to assemble really large quantities ordered at one time, has announced that the Defense Commission is making further studies in respect to the timing of defense contracts. Particularly, the Commission will endeavor to avoid the pyramiding of inquiries, which frequently results in rumors of excessive orders. If a number of manufacturers are bidding on the same offering, and other customers or dealers start to shop around for lumber in the hope of entering proposals for the identical business, the situation may quite readily be interpreted by observers as indicating shortages that do not exist.

The price index for the total lumber group has advanced only slightly since July, but a few items are reported as being out of line. These include roofers, Douglas fir boards, ship lumber, and B and better drop siding; also some items of yellow pine.

Sidney T. Covell has been appointed Manager of Purchases and Stores for the Shell Petroleum Co., at San Francisco, succeeding the late John C. Storey. Mr. Covell has been associated with the Shell organization since 1915.



There's one angle you watch as carefully as the amount you spend—and that's the value you buy! Figured over the year, you'll find that Champion Coal gives you more heat—lower-cost steam—cheaper power. Why? Because it's scientifically cleaned, sized and prepared to do your job better... to give you maximum results per pound of coal, and higher overall efficiency. • Order Champion—and take a bow when the plant engineer thanks you!

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General Offices: Oliver Building., PITTSBURGH, PA.

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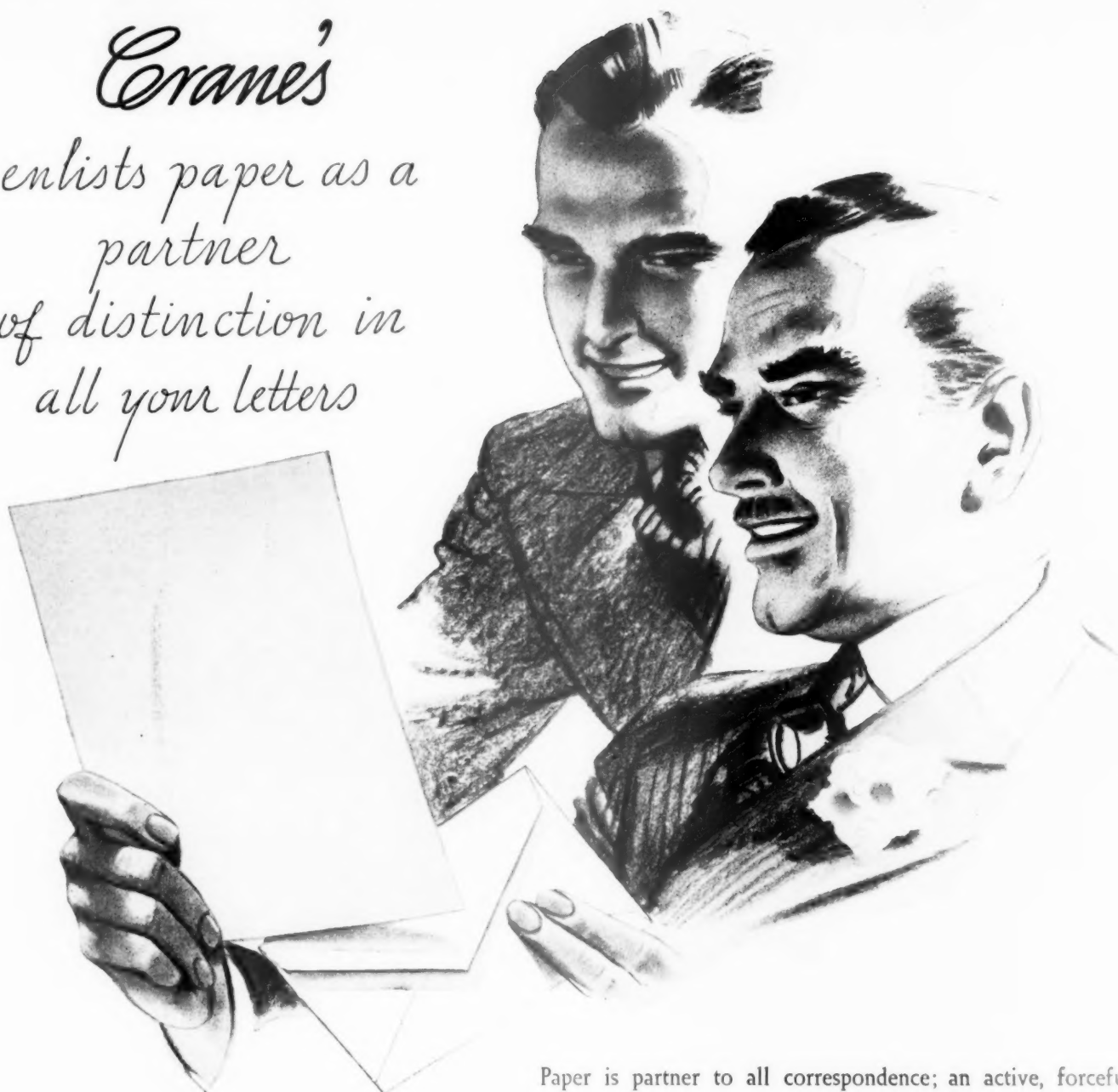
PITTSBURGH COAL CO., LTD., London, Ont.; Hamilton, Ont.; Toronto, Ont.; Windsor, Ont.

PITTSBURGH COAL COMPANY of Wisconsin, Duluth, Superior, Minneapolis, St. Paul

MILWAUKEE-WESTERN FUEL COMPANY, Milwaukee, Wisconsin

When writing Pittsburgh Coal Company please mention Purchasing

Crane's
 enlists paper as a
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 of distinction in
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Paper is partner to all correspondence; an active, forceful partner whose power to enhance, or detract from, your words is a potent factor in the effectiveness of all of your letters.

Many leading business houses, banks, executives and professional men regard Crane's as the one paper suitable to this partnership; the one paper whose single standard of *all-rag* quality makes its watermark an asset to all their activities. They count on Crane's Paper and Crane's Envelopes to carry their correspondence with the utmost distinction and durability.

Making Crane's your partner costs little more; returns many times its price in prestige and satisfaction. *We invite you to write for examples of Crane's fine letter papers with envelopes to match.*

When writing Crane & Co. please mention Purchasing

Crane's
 FINE PAPERS

MADE IN DALTON, MASSACHUSETTS
 SINCE 1801

SCIENCE CAN PROVIDE STRATEGIC MATERIALS

At the 100th meeting of the American Chemical Society, held in Detroit last month, Dr. Colin G. Fink of Columbia University stated that America's metallurgists stand ready to meet any emergency which may arise from the lack of strategic metals in this country. He said that scientists can use low grade ores, substitute other metals to replace the seven strategic metals used in warfare, and in which we are deficient, and can embark upon even more radical departures in practice if necessary.

Dr. Charles A. Thomas, Director of Research for the Monsanto Chemical

Company at Dayton, Ohio, told the Society that the United States is nearly self-sufficient in organic chemicals for peacetime use, but recommended that prompt steps be taken to develop pain relievers and to conserve the supply of natural rubber. On the latter point, he declared that the United States could produce, within two years, its annual requirements of 600,000 tons of rubber by synthetic processes, but suggested that it would be a wise policy to be economical in our use of natural rubber now, and to increase the output of reclaimed rubber even before necessity demanded such a move.

Other recent developments in related fields are the production of high octane

gasoline, and the discovery of chemical agents which, added to lubricating oils, can strengthen the wear prevention properties of such lubricants by as much as 17%, rendering them satisfactory for use at both high and low temperatures.

The successful commercial production of pure powdered iron, heretofore chiefly imported from foreign sources, is announced by the Glidden Co. of Cleveland. It is being produced by a continuous process at the company's Hammond, Ind., metal refining plant, where powdered lead, tin and copper are also made.

1 1 1

MARKS WILL PURCHASE FOR PLANE ENGINE PROJECT

According to an announcement by M. M. Gilman, President of the Packard Motor Car Co., J. H. Marks, former Purchasing Manager of the company, has been named Vice President "in charge of procurement, machinery and accessories in connection with the Rolls Royce plane engine project." The company has contracted to furnish 9,000 Rolls Royce Merlin engines for the Army and the British Royal Air Force. Production of the first units is expected within ten months and complete delivery of the order by the middle of 1942. The undertaking will necessitate the expenditure of \$37,000,000 in plant construction and equipment, financed through an R.F.C. loan.

1 1 1

SMITH BUYS FOR COUNTY

Merton L. Smith has been appointed Purchasing Agent and Auditor for Schoharie County, New York. He was formerly assessor for the Town of Cobleskill, and resigned from that position to accept the new appointment.

1 1 1

PRISON GOODS ARE BARRED FROM INTERSTATE COMMERCE

The Ashurst-Summers bill enacted by Congress last month prohibits the interstate transportation of convict-made goods for sale in competition with the output of free industry. It includes within its scope all articles produced in penal institutions with the exception of parts for farm machinery and agricultural products. The measure becomes effective one year from the date of its approval by the President.

1 1 1

NAVY BUYS STEEL PLANT

The Navy Department has completed arrangements to buy the land and buildings known as the Risdon plant of the Columbia Steel Co., U. S. Steel subsidiary, at San Francisco. The purchase price is reported as \$1,900,000. It is proposed to convert the plant for shipbuilding facilities to supplement those of the adjacent Union Iron Works of the Bethlehem Steel Co., which has been awarded contracts for the construction of four cruisers and eighteen destroyers under the two-ocean Navy bill. The additional space and facilities will greatly accelerate such construction.



Wrinkles?

O.K. on a Prune— but NOT on Your Packages!

You can spend thousands of dollars designing and producing an otherwise perfect package—and then wreck its appearance by using the wrong adhesive.

From foils to transparent sheetings . . . from pyroxylin-coated stocks to box-boards . . . there's a "Mikah" glue, gum, or paste that will meet your specific requirements. Our Service Department will gladly make suitable recommendations if you will write us full details.

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NATIONAL STARCH PRODUCTS Inc.

820 Greenwich St., New York

Chicago - Philadelphia - Boston - San Francisco—and All Principal Cities

When writing National Starch Products, Inc. please mention Purchasing

Truck Wheels and Casters

(Continued from page 60)

the center of gravity low and adds stability, tending to prevent the liability of tipping over a loaded truck or an office chair. The manner of assembly should be such as to facilitate any necessary replacements.

Better Bearings Are Worth While

Bearings undoubtedly present more chances for damaging or beneficial intangibles than any other parts of wheels.

Roller or ball bearings are by all means to be preferred, and double ball bearing construction, with one row to take the load and one to take the thrust, or a caster of the single ball race design so constructed that all forces are transmitted through the balls, offers many advantages.

No one can estimate the intangible increase of labor cost when a truck operator must call for help to break the starting friction of plain bearings and get his load under way. Seldom are men specially detailed to help the truckers get started; usually they must be called from machines or other tasks. Interruptions of their work do not stop when the loads are started, for they stand and watch the truckers for a moment or so before turning back to their positions. It does not take long for such labor leakages to cost more than the difference between plain drilled holes and roller or ball bearings in wheels.

Much of trucking labor is by boys, or by older or weakened workers who are almost on semi-pension basis of employment. Such employees are not used for the heaviest loads, of course. But roller and ball bearings in the wheels lessen the fatigue for these weak ones . . . a factor which has a definite effect upon management self respect and upon industrial relations.

Roller or ball bearings can be sealed for long periods or even for the life of the wheels, so they have no lubrication problems. And the tendency is, with plain bearings, for the unskilled trucking labor to over-lubricate, allowing oil to spill on floors or on rubber tires.

Self lubricating sleeve bearings are liked very much by some wheel users. With the types of these which can be damaged by oil, however, care must be taken that they are sealed against oil, for the training of many workmen is to oil anything to which they can apply an oil can.

The trend toward stricter plant cleaning programs affects wheel bearings. If floors are washed down at night with hoses, or if dirt is brushed up with piles of oiled saw dust, there is seldom any surety that trucks will be kept out of the way. It is advisable to have wheels that will stand the same cleaning methods as the floors and the bases of machines. If lubricant is likely to be washed out of bearings or dirt washed into them wheel life may be shortened.

Selection of means by which wheel forks or casters are fastened to trucks or platforms is important. Where the wheels are used on hand drawn or motor-powered industrial trucks, this means is selected by the truck designers and is correct. But large numbers of wheels are used on "home made" trucks, or even on standard ones which now are carrying heavier loads than originally intended. When failures of either wheels or truck bodies become too frequent, wheel fastening and mounting methods should be suspected and brought into question.

Standardizing of wheels helps buying. The Purchasing Agent may ask that

the weakest standard wheel used in the plant be capable of the heaviest load, or that the trucks be classed by their capacities and plainly marked by classes so failures due to overloads will be detected and will not upset the standards.

Safety and Maintenance

With about 40% of industrial accidents charged to materials handling, safety is highly important in wheel selection.

Many safety factors are outside the province of the Purchasing Agent. The safety of a truck is a matter of the whole design and construction of the truck, not of its wheels alone. But if

Can you see any difference here?

Ad 503

● Wire ropes LOOK alike; but when it comes to performance—THEN the real difference shows up. You may be one of many Purchasing Agents who now buy Macwhyte. If so, you've probably noticed that you don't re-order wire rope as often as you used to.

That's because in Macwhyte Wire Ropes high grade steel, laboratory tests, special lubrication and constant field proving are combined to give you a REALLY TOUGH ROPE, one that "can take it" longer.

"A shrewd buy" . . . is Macwhyte Whyte Strand PREformed (made by men whose only business is making better wire rope.) Your choice is right when you buy Macwhyte.

MACWHYTE COMPANY, 2918 Fourteenth Avenue,

Kenosha, Wisconsin

Manufacturers of rope wire—left- & right lay braided wire rope slings—Monel Metal wire rope—Stainless Steel wire rope—Aircraft Cables, Tie-Rods, and "Safe-Lock" Swaged Terminals—and wire ropes to meet every need.

BRANCH OFFICES

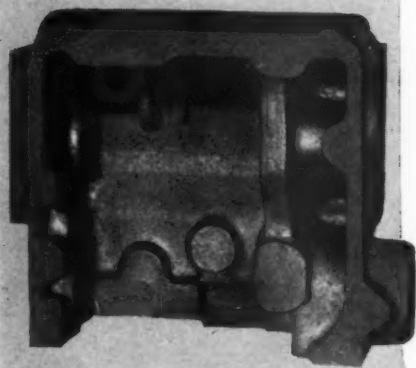
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For Pressure Tight Castings

**SEE
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CITY**



FOREST CITY can meet your requirements for castings up to 500 pounds each. An example of an alloy semi-steel pressure tight casting from one of Forest City's two foundries is shown here. Forest City supplies widely diversified fields such as:

*Automotive
Pressure Pump
Office Equipment
Electrical and Household
Appliances
Building Equipment
Machine Tools and
Equipment*

This wide diversification is backed by 50 years of casting experience—at your call for any type of soft gray iron, high test semi-steel or alloy semi-steel castings.

THE FOREST CITY FOUNDRIES COMPANY
2300 WEST 27TH STREET CLEVELAND, OHIO

The PRECISION Plastic INSUROK

PRECISION plastics are not simply a matter of machinery and raw materials. They require highly developed craftsmanship, best typified by Richardson plasticians . . . skilled artisans whose sole interest is plastics and their application to the requirements of industry and commerce.

In mechanical equipment Richardson plants are unexcelled; in men and method Richardson is "tops." These, then, are the profitable advantages INSUROK users enjoy . . . at no cost premium.

The RICHARDSON COMPANY

MELROSE PARK, (CHICAGO) ILL. FOUNDED 1858 LOCKLAND, CINCINNATI, OHIO
NEW BRUNSWICK, N. J. INDIANAPOLIS, IND.
DETROIT OFFICE 4-252 G. M. BUILDING, PHONE MADISON 7386
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truck accidents are frequent, it is likely that there should be purchases of safety handles, gloves, shoes, and braking mechanisms.

Hooded or shrouded wheels can save the silk stockings of female workers, a point of particular importance on chairs and office equipment. Sharp projecting axles, cotter pins, etc., are to be avoided.

Standard wheels having standard interchangeable bearings, axles, etc., lessen maintenance costs. Some wheels have replaceable tires.

Many of the purchasing intangibles can be removed if the Purchasing Agent can persuade the factory manager to put the wheels on the same kind of regular inspection program as is used for valves, boilers and electric motors. A trip through almost any plant will show plenty of slightly broken wheels in use. And it is the slightly broken wheel which hastens the expensive spalling and eroding of the slightly damaged floor.

If slightly damaged or inadequate wheels could be made to blow fuses or otherwise call dramatic attention to themselves, it would be well worth while. But as things are, it takes visualizing and imagination to buy wheels wisely.

Flexible Chair Glides

Functionally related to casters, though not coming strictly within the definition of this subject are the flexible cushion glides frequently used on straight

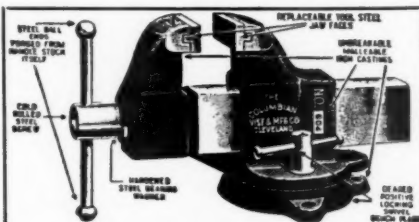
See
WOODSTOCK
TYPEWRITERS

chairs, and for the sake of completeness a few considerations on such equipment should be noted. Glides should have a hardened steel base of sufficient thickness to give lasting wear, and with rounded edges for easy sliding. A filler of rubber, surrounding the nail, makes for quiet movement of the chair. Since the majority of such glides are applied by the consumer, a sharp edged nail is preferred to make application easier. For use in damp atmospheres, and on carpets of pastel shades, as for example in seaside hotels, a base of stainless steel avoids staining and marking of the floor coverings.

1 1 1

Chester H. Norton, Purchasing Agent at the Boston Works of Allis-Chalmers Mfg. Co., Hyde Park, Mass., and for its predecessor, the Condit Electrical Mfg. Corp., over a period of fourteen years, has been transferred to the company's main office in Milwaukee as Assistant Manager of Purchases. Hugo W. Hauser has been transferred from the Milwaukee purchasing department to succeed Mr. Norton at Hyde Park.

William J. Ruddy, who has served as Acting City Purchasing Agent at New London, Conn., since the death of Thomas Fitch, has been permanently appointed to the purchasing post, effective with the start of the new fiscal year on October 7th.



COLUMBIAN Malleable Iron MACHINISTS' VISES

are designed to give the service required of quality tools. They embody special features which insure necessary strength, accuracy and durability. Columbian Machinists' Vises are guaranteed unbreakable. There is a complete line of Columbian Vises for all purposes. Recommended for general purpose use in shops having wide ranges of work.

Send for Catalog

Complete line of all types of Vises and Clamps.

THE COLUMBIAN VISE & MFG. CO.
9019 Bessemer Avenue Cleveland, Ohio
THE WORLD'S LARGEST MAKERS OF VISES



MAKING HISTORY

Panama and Beaver products are not only making history... they are also making it permanently legible.

Manufactured by
**MANIFOLD
SUPPLIES
COMPANY**
Nationwide
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Identified
Ink and Fabric
Products of
Superlative
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Quality



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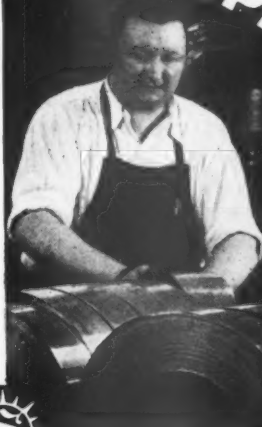
BEAVER

OFTEN THE ONLY ANSWER!

CORROSION is an outlaw! Unless effectively resisted, he will sabotage every vulnerable part of a product. Knowing this, smart designers and production engineers thwart corrosion in springs, slides, nuts, cams, trimmings, etc., by making them of Seymour Phosphor Bronze.

SEYMOUR

PHOSPHOR BRONZE



This alloy of copper, tin and phosphorus is also very tough and takes a spring hardness that will withstand thousands of "fatigue" cycles without impairment. You should have the Seymour Phosphor Bronze Manual in your files. Glad to send it on request.

**THE SEYMOUR
MANUFACTURING
CO.**

55 Franklin St.,
Seymour, Conn.



6TH CARBOLOY ANNOUNCES PRICE REDUCTION

PLUS "UNIVERSAL" TOOLS
for 80% of all **TURNING BORING FACING** Jobs

Now developed—and ready to go into mass production on a scale never before attempted in this industry—we announce a line of Standard Carboley tools in five "universal-use" styles—All Ground and Ready for Use—adaptable to 80% of all turning, boring, facing operations on steel, cast iron, aluminum, etc.

Important part of a long range program involving the opening last year of a million dollar plant to provide quantity production facilities—these new "Standards" are now available at a low scale of prices representing the sixth major price reduction since 1929. This broad program also has made possible reductions on many other Carboley products.

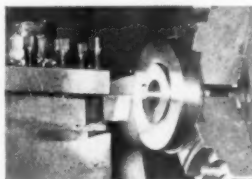
With many plants already called upon to increase production to an unprecedented extent (and many more about to be), normal increases from extra man-hours and extra hours of work may be inadequate. One immediate solution is to make your present machines do more work in a given time. Carboley tools accomplish this by cutting at faster speeds, staying sharp and holding exact size for longer operating periods, and readily cutting ultra-hard modern alloys.

In this way Carboley provides a quick, inexpensive way to immediately step-up output of your present metal working machines. New price lists and factual booklet upon request.

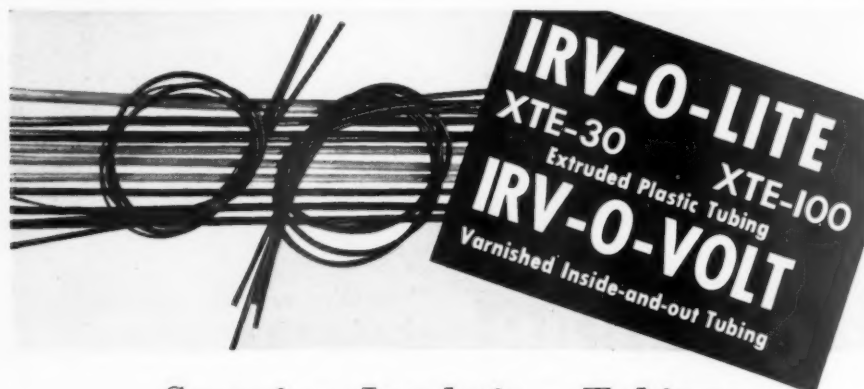
CARBOLEY COMPANY, INC.

11191 East Eight Mile Road—Detroit, Michigan

CARBOLEY CEMENTED CARBIDES



By simply changing to Carboley tools, on 5500 jobs (2500 Steel Cutting jobs), machining output increased 30 to 100% at Bullard, Gisholt, Monarch, and Warner & Swasey.



Superior Insulating Tubings That Cut Costs—Improve Products

These recently perfected Irvington products possess qualities hitherto unobtainable in electrical insulating tubing. High strength, toughness, resistance to chemicals, resistance to petroleum and other solvents, and high heat resistance are their most outstanding ad-

vantages in use. Manufacturing costs are reduced by the smooth *inside* surfaces and extreme flexibility which enable quick assembly on wire. Withstand soldering and sealing temperatures. Meet or excel severest appropriate A.S.T.M. specifications.

Test these tubings yourself. Send your requirements and we will promptly forward samples best suited for your use, plus full data on all types and sizes of IRV-O-VOLT and IRV-O-LITE.

IRVINGTON VARNISH & INSULATOR CO.



IRVINGTON, NEW JERSEY, U. S. A.

PLANTS AT IRVINGTON, N. J. and HAMILTON, CANADA

Plant Lubrication

(Continued from page 47)

failure to provide for correct lubrication at the time the machine is being designed. It is not that such provisions could not have been made, or that the builders would not have done so; it is that the purchaser did not demand it. Of course, he should, specifically, know what to demand. Here a competent lubrication engineer can be "worth his weight in gold" if the company employing him buys considerable machinery every year. When design of a new machine for the plant is contemplated, or when a machine is to be duplicated or a new machine purchased, the lubrication engineer should be assigned the responsibility for its correct lubrication by the most suitable method; by all means consult him *before* types of bearing are decided upon.

Obviously, only the large organization can make it pay to have a lubrication engineer on the payroll all the time, but his services have a definite place even in the smallest plant. For example, in one company having several plants, the lubrication engineer achieved the first year a direct saving equal to eight years' salary; he is one of the highest paid lubrication engineers in the country. In addition, there were also indirect savings of a considerable amount during this first year. But more, this direct saving made that first year would have gone on as an expenditure *every* year had he not shown how to save it.

THIS CAN'T HAPPEN—



When You Write With
Templar DURO Lead*
PENCILS

25% to 75% stronger than similar 5c pencils. Available in six accurately graded degrees for every type of office work. Sold by stationers and office supply dealers.

*U. S. Pat. No. 2,131,657

FREE SAMPLES

are available to Purchasing Agents who will attach this ad to their company letterhead and mail to

RELIANCE PENCIL CORP.
Manufacturers (Dept. P) Mt. Vernon, N. Y.



Batting Average...775!!

Frankly, it wasn't 1000%. But in a recent series of impartial tests the comparative strength of corrugated board combined by various adhesives was determined after exposure to varying humidities typical of actual service. By Mullen tests no material differences were noted between the several adhesives. But by moisture tests, adhesion tests, and flat crush tests, the definitely superior strength of the Stein-Hall Starch Combining Process was clearly evidenced. How particularly manifest this superiority was you will learn when you write to any of the companies named below for a copy of this unbiased report.

CORN PRODUCTS REFINING CO.
17 Battery Place, New York City

STEIN, HALL MFG. CO.
2841 S. Ashland Ave., Chicago

CLINTON COMPANY
Clinton, Iowa

THE STEIN-HALL PROCESS

PENICK & FORD, LTD., INC.
420 Lexington Ave., New York City

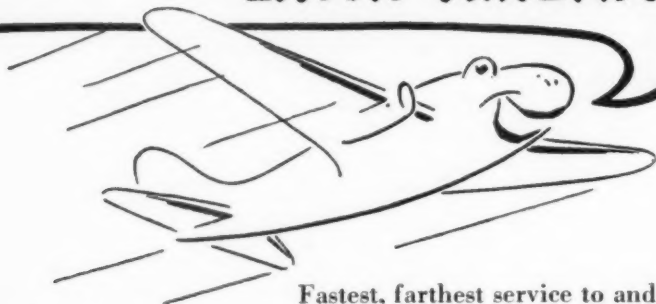
STEIN, HALL & CO., INC.
285 Madison Ave., New York City

THE HUBINGER CO.
Keokuk, Iowa

A. E. STALEY MFG. CO., Decatur, Illinois

When writing The Stein-Hall Process please mention Purchasing

**HELLO HAWAII—ALASKA
—THE FAR EAST—
LATIN AMERICA**



Fastest, farthest service to and from—day and night—3-mile-a-minute AIR EXPRESS saves days on deliveries—extends your business boundaries thousands of miles beyond their old-time limits—opens up new markets waiting for profitable expansion. Make AIR EXPRESS speed and coverage your No. 1 national and international shipping reliance. For service and co-operation, phone RAILWAY EXPRESS . . . AIR EXPRESS Division.



THE ONE SPRING most perfectly suited to the job to be done... sifted out... rigidly pretested for performance... produced with unfailing accuracy... guarantees perfection in your product... And these are the reasons why leading manufacturers use springs by Hunter!



Don't Gamble—

SEAL WITH

Evans'

NO. 1303

**CASE
SEALING
GLUE**

COVERS 3 TIMES MORE SURFACE than Silicate of Soda —

No. 1303 is used by many of the largest industries of this country. It is unexcelled for economy and will assure absolute sealing security.

WRITE

**The COMMERCIAL
PASTE COMPANY**
508 Buttles Avenue
Columbus, Ohio

MERCURY PRODUCTION AT PEAK

Domestic production of mercury is currently running at nearly double the average monthly rate of 1939 and is exceeding the previous peak of 3,100 flasks produced in May of this year. California output is up 71% from the 1939 rate, Oregon output up 97%. Nevada mines show the most spectacular percentage increase, with production several times as great as a year ago, while gains are also reported from Arizona, Arkansas and Texas.

Consumers' and dealers' stocks are reported as equal to five months' supply at present rates of use, and gradually increasing. Producers' stocks would raise this total slightly. Imports are virtually at a standstill. Exports are far above normal, with Great Britain and Japan as the largest customers. Since July 2, exports have been permitted only by license.

1 1 1

Getting Educated

(Continued from page 51)

The cost department also drew up detailed records, basing them on appendices A and C and our own data sheets. For each operation, whether manufacturing or assembly, they made a separate sheet including the cost of labor, materials, etc., placing at the bottom of the sheet (which were bound at the top) the drawing number of the part involved. The aggregate total of

**COILED WIRE
SPRINGS**

**WIRE FORM
SPECIALTIES**



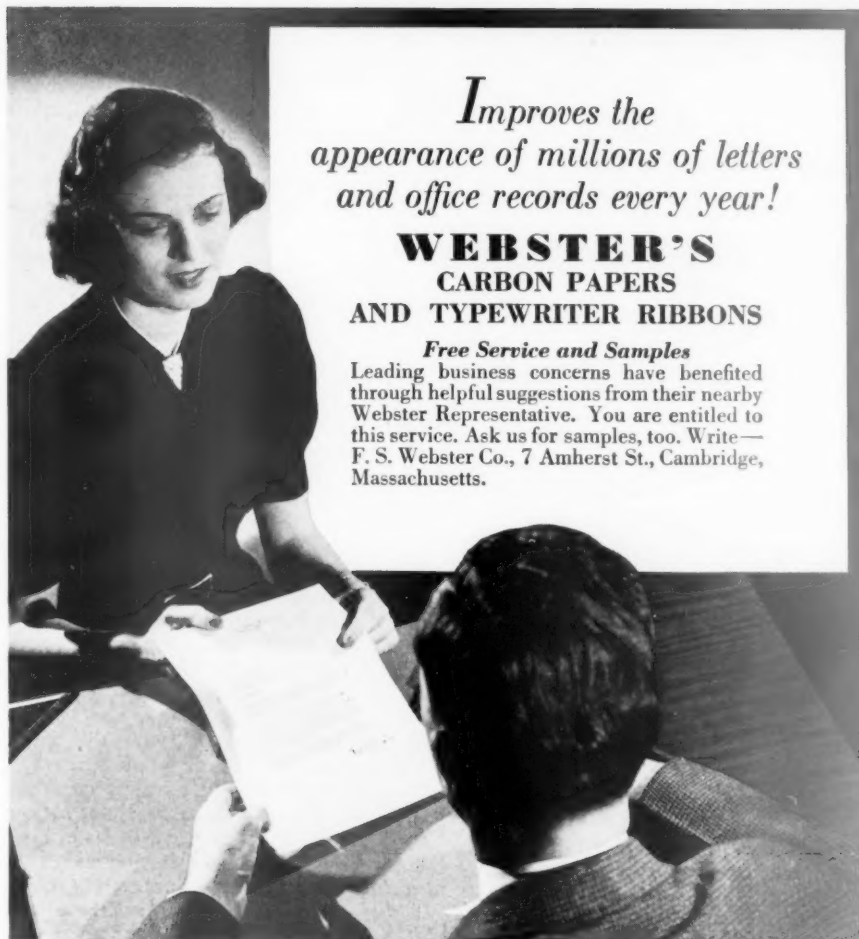
Springfield, Ohio, U. S. A.

*"Where Your Patronage
Is Appreciated"*

the figures on each sheet produced actual cost of a complete unit.

In the meantime, Bill was having his troubles with his building. We had a map of Reading upon which were spotted some twenty-odd properties in widely separated districts, suitable for storage, which we had made up last fall when we were appointed head of the Committee on Purchasing for the Disaster Committee of the local chapter of the American Red Cross. As many of these buildings were also suitable for manufacturing, the list gave us a good starting point. Armed with the suggested layout taken from Appendix A, our architect, a contractor, and Bill went over the buildings that seemed adaptable. Having selected one and preliminary discussions held regarding rental and so on, we had an estimate made of the cost of reconditioning it for our needs. (This expense, by the way, had to appear in the bid.) Blue prints were made for each floor, with layout of machines, storage and operating space with sequence of processes. At this point the owner changed his mind and decided that he would sell but not rent. So that was out with about two hundred dollars worth of time and blue prints.


Finally a place was found, at the last minute, and more estimates and blue prints were prepared. When we look back over the short weeks spent on working up our figures it is easy to see why the proposed order was called "educational."



Improves the appearance of millions of letters and office records every year!

WEBSTER'S
CARBON PAPERS
AND TYPEWRITER RIBBONS

Free Service and Samples
Leading business concerns have benefited through helpful suggestions from their nearby Webster Representative. You are entitled to this service. Ask us for samples, too. Write—F. S. Webster Co., 7 Amherst St., Cambridge, Massachusetts.



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ALUMINUM OXIDE
SILICON CARBIDE
CORUNDUM
(AFRICAN)
TURKISH EMERY

Refiners and Makers
of
ABRASIVE GRAINS
AND
FLOURS

AMERICAN ABRASIVE COMPANY
WESTFIELD, MASS.

GOD-FATHER TO A



Equipment by E. W. Applebaum—Photo Courtesy Burlington R.R.

★ Racing across the Nebraska prairie at 75 miles an hour, the "Pioneer" Zephyr gives out with a long blast. A half dozen jack rabbits in the immediate neighborhood shift into high.

In Omaha—160 miles away—a crowd cheers as a champagne bottle smashes against the prow of the new "Silver Streak" Zephyr.

What's the connection? Relays by Guardian! The sound impulse picked up and transmitted by short wave, actuated a Guardian Control Assembly which smashed the bottle and launched another Burlington Streamliner.

Your control problem may involve distances of inches . . . or fractions of an inch . . . instead of miles. Your mechanism may operate 100 times a minute instead of once in a lifetime, and crowds may never gather to see it happen. But no matter how simple or how complex . . . you can depend on Relays by Guardian to do YOUR job . . . economically and effectively. Ask us to offer cost-free engineering suggestions. Send a chart or diagram.

Initial your letterhead for big new catalog "P" today.

GUARDIAN  **ELECTRIC**
1635 West Walnut Street Chicago, Illinois

Zephyr

RELAYS
by
GUARDIAN



**SERIES 110
AC RELAY**

One of "Guardian's" complete line of electrical control units turned out in volume production from 3900 standard parts. Any quantity as you want them—when you want them.

→ How to Increase the Utility of Your Plant → Quickly

Without building or expanding you can increase the utility of your plant by providing more safe storage space . . . and with positive protection against thieves, saboteurs and trouble makers. Put Anchor Fence around every inch of your property, and use ground that is now lying idle, for storage. Undesirables can't get in when you put up Anchor Chain-Link Fence. Industrial executives have found that Anchor provides one of the best known safeguards to lives, production and profits.

Get in touch with the Anchor Fence Engineer today. He'll tell you how quickly an Anchor Fence can be installed around your plant . . . and he'll recommend the proper Anchor Fence to best suit your needs. Mail the coupon below—now. There's no obligation, of course.



ANCHOR POST FENCE CO.
6615 Eastern Avenue, Baltimore, Md.

- ☐ Please have Anchor Fence Engineer call.
☐ Send illustrated Industrial Fence Catalog.

Name.....

Firm.....

Address.....

Although the people in Washington are more than careful, it will pay you, should you be asked to bid, to check all details with utmost care. It is impossible to expect that in a project of this size some small errors will not be made. For instance; one drawing of a metal part showed that it was to be made of brass tubing, as did the bill of materials. The list of operations and machines, however, clearly indicated that sheet metal was required.

In another case, we received some samples of small metal parts of commercial manufacture that we were permitted to buy. One did not conform with the blue print while the other two did. Checking into this revealed that the odd piece was correct as the drawing had been changed and the change not included in the lot delivered to us.

A third instance turned up in connection with a fabric. The specifications clearly stated that unless otherwise specified, the width of the material was to be 28 inches. Look as we might, we could not find any "otherwise specified." We should have, because the dimensions of the piece to be cut were 17½ inches by 19 inches, the shorter length to run parallel with the warp. This meant 10½ inches of waste. A thirty-six inch width gave us only one inch of waste and enabled us to cut two pieces from each yard instead of one. In the process of getting and comparing quotations a number of interesting points arose but, as these are

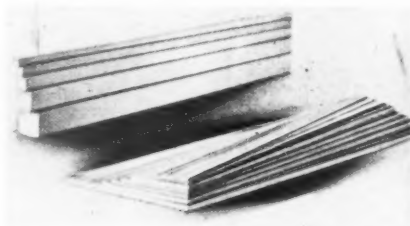
PUT THIS UP IN YOUR TOOLROOM

NOTICE

YOUR TIME IS VALUABLE. DO NOT
WASTE IT LOOKING FOR ODD PIECES
FOR SMALL PARTS. THERE IS A SUPPLY OF

**STARRETT
GROUND FLAT STOCK**
IN THE TOOL CRIB

You're paying ten times too much when skilled workmen waste precious hours making small parts out of misfit scrap. It's so much better, faster and cheaper to use Starrett Ground Flat Stock. No hunting for pieces about the right size—no grinding to the correct thickness—just select a length of No. 495 Flat Stock in the right width and thickness and start working.



Made of first quality tool steel, cut lengthwise from the sheet, ground to within .001" of size and annealed for easy machining. Perfect for test tools, die work, jig and fixture parts, templates, gages, etc. Available in 18-inch lengths in a complete range of widths and thicknesses. Write for special Ground Flat Stock Folder "P" and handy reference wall chart for the toolroom.

THE L. S. STARRETT CO.
ATHOL • MASSACHUSETTS • U. S. A.

Standardize on
**STARRETT
TOOLS**

Buy Through Your Distributor

For
BUSY MEN
WHAT you want
WHEN you
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it!



THE PERFECT WORK ORGANIZER

- Desk High
- Equipped with Lock
- Expansion and Compression
- Easy Operation
- Rubber Tired Casters
- Top Lifts and Falls Away
- Choice of Four Finishes
- Low Priced—Highest Quality

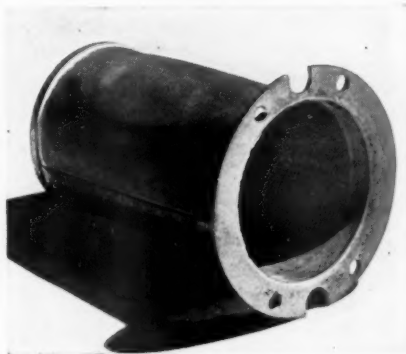
The Perfect Christmas Gift

AUTOMATIC FILE and INDEX CO.

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Dept. A43, Chicago, Illinois

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Something New!



LEKTROMESH
TRADE MARK

A JELLIFF PRODUCT

Here is a valve strainer made with a new metallic screen — a metal cloth produced by depositing virgin metal electrolytically to form any desired design, in continuous lengths and varying widths, in 25 and finer mesh count per linear inch.

"Lektromesh" is readily fabricated by drawing, stamping, welding, soldering, etc. Can be obtained in any shape and a variety of sizes. It cannot unravel.

Its smooth even surface enables it to withstand wear in applications where it must be exposed to scraping operations.

It offers greater rigidity and greater accuracy of openings than has ever before been possible in a screen product.

Let Jelliff development engineers work out your problems with you or if desired, samples of "Lektromesh" will be furnished gladly for your own experiments.

P. A's check list.

Screen Cloth	Fabricated Screen Parts
Industrial Mesh	Resistance Wire
Insect Screen	Dipping Baskets
Lektromesh	Metal Filter Cloth

Write Jelliff for Specific Needs on Above

Sales representatives, working from key cities, completely cover the country.

1880 60th Anniversary 1940

C. O. Jelliff Mfg. Corp.
Southport, Connecticut

encountered by all of us frequently in our routine work, there is no particular reason for including them here except to mention that in the heat of the fray when time is all important, take the time to compare everything with more than usual care.

Wake Up, Industry!

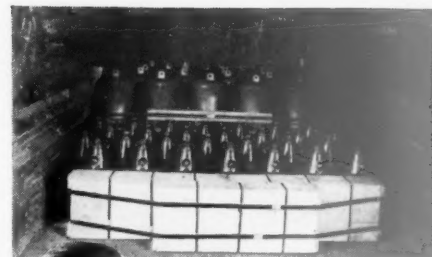
When the tumult and shouting had died and the bid sent off, we were able to draw one or two conclusions from our experience. One in particular was the lack of get-up-and-go on the part of not a few of the suppliers we approached. Some told us that they could not quote without samples and specifications and made no effort or offer to try to get either. Some who had quoted when we approached them last May were "not in a position to quote at this time," with no further explanation. Others seemed to be scared off by the fact that a Government bid was involved. There were others who candidly admitted their ignorance of manufacturing and supplying under government specifications but expressed willingness to make a stab at it if we would tell them where and how to get the necessary information.

One might expect these reactions from small concerns, but we had selected our list carefully. We are inclined to believe that as our armament program progresses and more companies are called upon to work with the Gov-

★ *Mr. P. A. —* ★

The Mexican jumping bean is a cheap spring but its activity obeys no impulse useful in mechanics. Three-dimensional-springs may "obey that impulse" but none too well and not for long. Four-dimensional-springs are a maximum contribution to long life and trouble-free performance. Send for our Scientech spring specification form.

LEE SPRING CO., Inc.
30 MAIN STREET
BROOKLYN, NEW YORK



LOOK AT COMPETITIVE BIDS FROM THE RECEIVING ROOM ANGLE

In considering competitive bids, do you include receiving room costs? Many times they change the entire picture. Receiving, handling, unloading—all increase the net cost. Take the unloading of carload freight, for instance. With many manufacturers' shipments, considerable unnecessary expense is encountered in removing the old type braces.

ACME Unit-Load PROCESS KEEPS COSTS DOWN

But with ladings braced with Acme Unit-Load it's another story. They show minimum unloading costs. One snip of each strap and the shipment can be removed easily and quickly. Acme Unit-Load bracing makes both loading and unloading easier, faster, more economical. When you insist that shipments to you must be braced with Acme Unit-Load, you are virtually assured of minimum receiving room costs. Both you and the supplier will benefit. And cartons, boxes, bundles and skid loads that have been Acme Steelstrapped for reinforcement and protection can also be handled and unpacked easily in minimum time at low cost.

GET FULL DETAILS

About Acme Strap Purchase Plan

By purchasing Steelstrap on the Acme Strap buying plan you can effect important economies. Mail the coupon for full information. There's no obligation.

ACME STEEL COMPANY

2842 ARCHER AVENUE, CHICAGO, ILL.
Branches and Sales Offices in Principal Cities

ACME STEEL COMPANY
2842 Archer Ave., Chicago, Ill.

- ☐ Furnish complete information about the Acme Strap Purchase Plan.
☐ Mail a copy of "Stopping Profit Leaks," a story of the advantages of Acme Steelstrap.

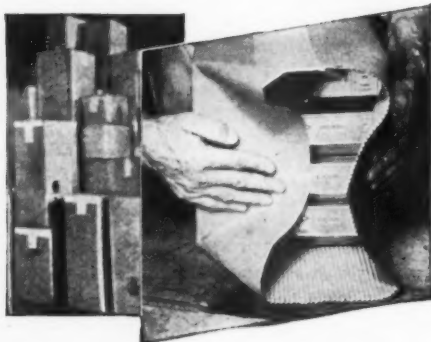
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CUT COSTS on Packing Materials



REPLACE CARTONS with CORROFLEX

You save important money when you change to Corroflex "Speed-Packing". First, because Corroflex, a flexible cushioning material, CUTS MATERIAL COSTS, often as much as 60%. Second, Corroflex SAVES TIME, helps get rush shipments out promptly. Third, Corroflex SAVES WEIGHT through spring-board cushioning action that gives greater protection against repeated shocks, greater safety in shipment.



Free Aids to Shipping Room Economy!

SEND TODAY for new data sheets on shipping room savings, sample roll of Corroflex, and an automatic pencil with parcel post rates. These will be sent to you without cost or obligation.

.....
SHERMAN PAPER PRODUCTS CORP.
DEPT. P10, NEWTON UPPER FALLS, MASS.
OK. Send me the new data sheets on better, lower-cost
packing methods, pencil and sample roll of Corroflex.

Name
Company
Address

.....

ernment, either directly or indirectly, this apparent lack of interest will disappear and be replaced by more positive action as our country's needs are more fully understood. Many of us are going to be asked to do a lot of things we have not been accustomed to, and the sooner we realize it and accept that condition as one of those necessary but disagreeable things to be done, the better it will be.

Some Fine Cooperation

Contrary to the attitude just mentioned was the extreme promptness and efficiency shown by a manufacturer of machines who responded to our request for quotation in five days. It involved a large number of different kinds of machines and arrived neatly bound in a folder with the tools, dies and machines classified by the CWS drawing number and operation, hourly capacity, the cost of one tracing and four blue prints of each item, as required under the terms of the bid. The whole thing was as close to perfection as it possibly could have been, and yet this particular company had no more to go on than several others had.

There was another manufacturer whose machines are used in the assembly of items made from a fabric. He not only furnished a complete list of the various kinds of machines needed, but a layout of the department with progressive operations. A manufacturer

DAYTON GRINDING WHEELS

A finer grinding wheel preferred by leading firms. Specify any type, size, grain, bond, or grade.

Simonds Worden White Co.
DAYTON, OHIO

Factories at Buffalo, Beloit, Cleveland, Dayton

ACE STAPLING MACHINES

Clinch Friendships for Life!
PERFECT IN EVERY PERFORMANCE

MILLIONS
Prefer ACE
EFFICIENCY
and
ECONOMY

Lifetime Guarantee
OF FAITHFUL TROUBLE-FREE
STAPLING SATISFACTION

\$6*



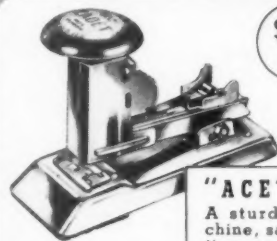
"ACE" STANDARD
Our popular leader, representing the highest achievement in stapling efficiency for Lifetime Jam-proof Service. Uses Standard Staples-210 Capacity.

\$4*



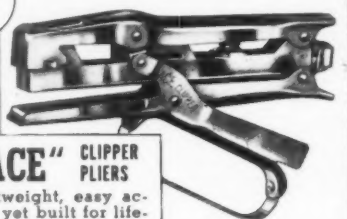
"ACE" PILOT
A medium-size all steel, precision built machine. Performance unmatched in its price range. Uses Standard Staples-210 Capacity.

\$3*



"ACE" CADET
A sturdy small machine, same construction, as the Pilot with shorter magazine. Uses Standard Staples-105 Capacity.

\$4.50*



"ACE" CLIPPER PLIERS
Lightweight, easy action, yet built for lifetime performance. Uses Undulated Staples-210 Capacity.

ACE STAPLE REMOVER
Saves your finger-nails... prevents torn papers. Every stapling machine operator should have one.

60c*



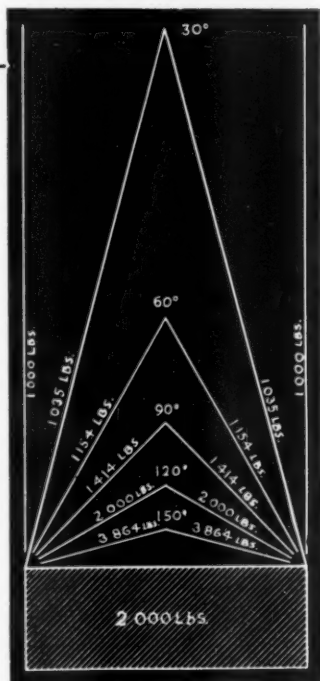
*EAST OF ROCKIES
ORDER FROM YOUR STATIONER

ACE FASTENER CORPORATION
Makers of the World's Best Stapling Machines
3415 N. Ashland Ave. Chicago, Ill.

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FACTOR OF SAFETY

5 TO 1
FOR ROPE SLINGS
AND LASHINGS



To lift a weight of 2000 pounds, the load on the ropes pulling straight (angle of zero degrees) is 1000 pounds on each rope (see Diagram)—what size rope should be used?

Using a safety factor of 5, a rope having a tensile strength of 5000 pounds will be required. By consulting the Plymouth Weight and Strength Table you will see that 2 1/4 inch rope (3/4 inch diameter) minimum break 5400 pounds, is the rope to use for this job.

WATCH YOUR ANGLES!

Note the rapid increase in the load at the wider angles. For instance, at an angle of 120° the load on the rope is doubled! The factor of safety then becomes only 2 1/2 to 1, far too little! Should an angle of 150° ever be necessary the safety factor is only 1 1/4 to 1. As the angle between the ropes increases the factor of safety decreases and the danger to life and property increases.

If you are interested we shall be glad to send you on request a copy of the new Plymouth booklet—"Lift It Safely"—which includes the "Weight and Strength Table" and many other facts bearing on the proper use and care of rope.

PLYMOUTH CORDAGE COMPANY

North Plymouth, Massachusetts and Welland, Canada
Division Offices: New York, Chicago and San Francisco. Warehouse Stocks: New York, Boston, Baltimore, Philadelphia, Cleveland, Chicago, Houston and San Francisco.

PLYMOUTH
THE ROPE YOU CAN TRUST

of conveyors, who was as much at sea as we were regarding what was needed, sent an engineer to the arsenal and then to our plant to study the problem and designed a system to do the job.

Another outstanding example of service was in connection with a material that we shall call regenerated glue, because that is not what it was. We knew what glue was, but had never heard of regenerated glue. We called our regular source of supply, who should have known, if anyone did. For a moment he was stumped and said he would call us back soon. He must have been up a higher stump than he thought, as he did not phone until several hours later. This is what he told us: He had phoned the arsenal, where some information was given him. He had then called up their main office, some hundred miles away, and discussed the whole thing with one of their specialists, who in turn had called Washington. If we would in turn phone said specialist, at their expense, on the following day at two-thirty, we would be given the information we wanted. We did and got it. The pay-off in this incident lies in the fact that not more than \$5.00 worth of material was involved and, when we phoned the first man we had gotten in touch with to confirm this, you would have thought that we had been discussing a ten thousand dollar transaction. This was a Government matter, connected with the defense program, we were told, and they were

A New High in Stencil Standards

TEMPO FILM

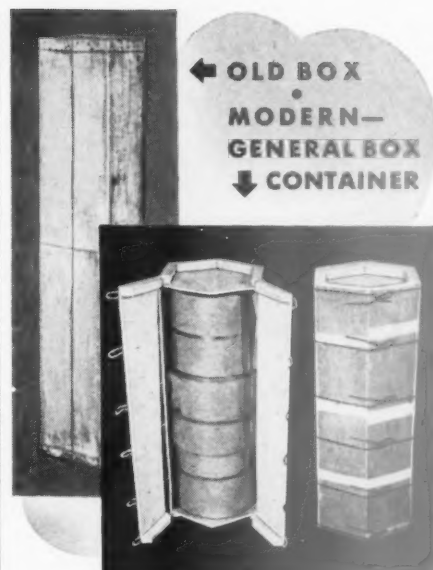
THE MOST PROGRESSIVE STENCIL STEP IN YEARS

SOLD BY LEADING DEALERS EVERYWHERE

For details, attach this advertisement to your letterhead and mail today

MILO HARDING COMPANY

437 W. Pico Blvd., Los Angeles, Calif.
513 Commonwealth Annex, Pittsburgh, Pa.



REDESIGNING One CONTAINER SAVED MORE THAN THE SHIPPING MANAGER'S SALARY!

An eastern metal manufacturer found extra profit in the shipping room by sending several typical shipments to the General Box Laboratory for inspection. Each of the redesigned containers effected an important reduction in cost. For example, the hexagonal wirebound boxes shown above reduced tare weight by 24 pounds per shipment. Savings in container costs amounted to 16%. And adequate protection was provided. At the same time, easier, faster packing and handling was assured by the wirebound feature of these and other redesigned containers.

You, too, may find extra profits in scientifically designed shipping containers. Practically every type of product has received the benefits of General Box experience and laboratory facilities. Why not be sure of maximum economy? Mail the coupon today—there is no obligation.

GENERAL BOX COMPANY

General Offices:
48 West Illinois Street, Chicago, Ill.
District Offices and Plants: Brooklyn, Cincinnati, Detroit, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, East St. Louis, Winchendon.
Continental Box Company, Inc.: Houston, Dallas

() Send complete information about the General Box Laboratory service.

() Have a General Box engineer call.

NAME _____

ADDRESS _____

CITY _____

STATE _____

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STREAMLINING PAYS



In "Jungle Yachts" and in Ribbons & Carbons!

IN planning to pierce the Belgian Congo jungle, Commander Attilio Gatti gave scant heed to passing styles and fads in his equipment.

But every inch of his modern, streamlined "Jungle-Yachts," powered by International Trucks, was planned to perform a specific function with the greatest ease, economy and resistance to wear.

Knowledge of the job to be done and ability to make the products to do it, also characterize Columbia Ribbons and Carbons—streamlined in function to suit the exacting requirements of modern business for faster, neater work—outstanding for their economy and their resistance to wear.

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205 East 6th Street, Cincinnati, Ohio
(Harris-Moers Company)

—Also—

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Australia



not only glad to help us out but considered it their duty. The fact that these incidents occurred in connection with companies familiar with Government work would tend to prove the statement made in the foregoing section.

From three or more sources we received identical quotations on half a dozen different materials. (We were not fooled by two prices, one at .715c per hundred and the other \$1.03 per gross.) Probably not more than half of the quotations were made F.O.B. Reading and guaranteed for ninety days after August 30th as required by the terms of the bid. This latter point is understandable but it took a lot of extra paper work in the attempt—not always successful—to straighten out the F.O.B. point.

The Problem of Workers

In addition to the matters of wage rates, rates for overtime, taxes and so on, all of which hopped out of unexpected paragraphs of the invitation, there was one large matter that was not to be found in any of the documents; that of labor.

Here we were, asked to undertake a job not entirely, but to some extent, unfamiliar to us, requiring the training

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Our big free 684-page Premium Catalog is worth its weight in gold if you are in need of premiums. A few words indicating your problems, addressed to department P on your business letterhead, will place this book, the Hagn Merchandiser, in your hands within a few days.

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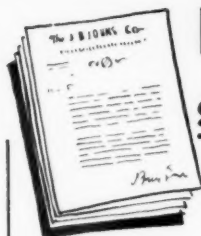
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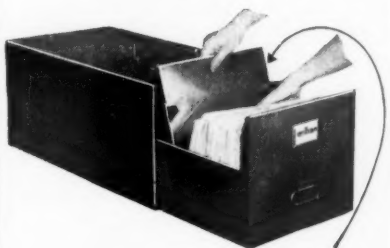


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Fairbanks Commander Steel-frame Platform Trucks withstand more rough treatment, therefore give years more service.

Why? Because the ruggedly constructed hardwood platform is protected all around by heavy steel angle irons. But in case of accident, one or all platform boards can be easily and cheaply replaced without cutting or re-welding.

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Fairbanks
PLATFORM TRUCKS

not only of foremen but of operators. If we should get the order, we would have a year in which to complete it. While a working force of sufficient size to make 5,000 units per day in three eight-hour shifts would not be taken on merely to produce the 10,000 required by the educational order, that smaller group would have to serve as the nucleus of the larger organization.

What is to be done with these people upon completion of the order? How many will be taken into the army by conscription? Will the plant be operated after the educational order is finished and, if so, to what capacity? "All this and Heaven too" are only a few of the things to which many manufacturers will have to find the answer.

As to this particular bid—again we got the education. The order, up to the time of writing, has not been placed. Here's hoping.



**Only
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have the patented blue Aligning Card that holds hooks in position, prevents them from loosening, prevents hook loss from handling, prevents waste of short ends. Every WIREGRIP Hook to the last one can be used.

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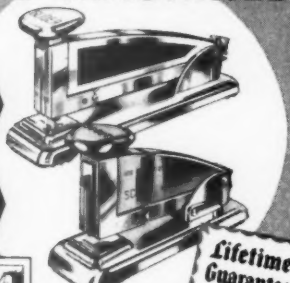
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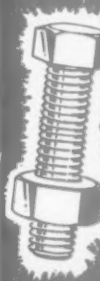
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TURNERS FALLS, MASSACHUSETTS

FIGHT!
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**BOLTS. NUTS
and SCREWS**

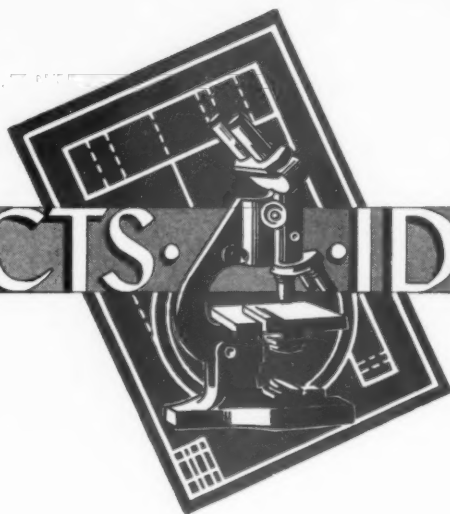
Harper is your logical source of supply for every type of non-rust fastening made. Brass, Bronze, Everdur, Monel and Stainless... bolts, nuts, screws, washers and other fastenings—Harper makes them all to defeat those forces which destroy common fastenings. **3600 ITEMS IN STOCK** Immediate shipment... Almost every corrosion-resistant alloy.

SPECIALS WELCOME Harper's plant is set up to turn out a great variety of unusual work economically. Ask for Catalog 72 which shows the full Harper line and contains important reference data. Write The H. M. Harper Company, 2606 Fletcher St., Chicago.

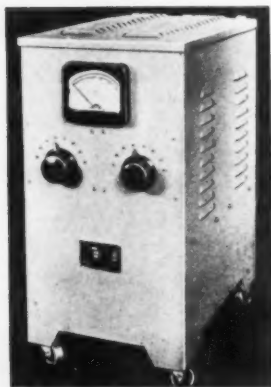


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PORTABLE RECTIFIER



■ The rectifier manufactured by Mellaphone Corp., Rochester, N. Y., is designed especially to provide d.c. from an a.c. source for testing purposes. The output voltage may be adjusted by means of knobs on the front panel in steps of 32, 110, 115, 120, 210, 225, 240 volts. Output voltage is indicated on an accurate voltmeter on the panel.

Current capacity of the rectifier is 30 amperes at 32 volts d.c. and 20 amperes at all other voltages. This provides ample power for testing farm equipment as well as 110 or 220 volt

d.c. refrigeration equipment, business machines, electro-magnetic devices, etc.

Two mercury vapor tubes are used to obtain full wave rectification of the single phase a.c. line. Output voltage remains practically constant from no load to 25% overload. Tubes have long life and operate at high efficiency. The rectifier contains no moving parts.

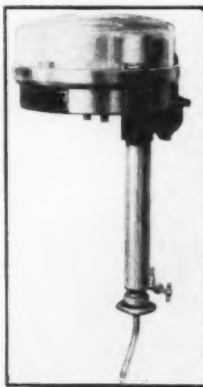
LABORATORY WATER STILLS

■ Announcement is made by the F. J. Stokes Machine Co., Philadelphia, of six new electrically-heated laboratory water stills, in capacities of 1/2, 1 and 1 1/2 gallons per hour. Each of these sizes is offered in two distinct types, one with standard immersion heaters and the other with heavy duty heating elements that are fully protected against burn-out.

These heavy duty elements are especially recommended for use in hard water districts, where scale tends to build up rapidly. They have a built-in thermal safety switch that instantly cuts off the current in case the element overheats, either because of an accumulation of scale or in case the water supply should fail.

Expansion and contraction of the flat blades of these elements tend to crack off scale as it forms and the unit is thus partially self-cleaning. It is stated that this type of element construction, plus its safety-switch protection, gives heating units extraordinarily long life and saves expensive replacements.

Other features of all these stills include Pyrex glass covers, readily removed for easy cleaning; solid tin condenser tubes, triple vapor baffles to prevent spray from contaminating distillate; heavy, one-piece copper boiling chambers, chromium finish; automatic operation; gas eliminator to remove dissolved gases from the feed water and a deconcentrator that automatically removes impurities which cause foam and scale.



BUSINESS CONTROL SYSTEM

■ This Kardex business control system adds a distinct and welcome innovation. Insulation, certified to protect the record contents of the unit for a full hour in the face of heat ranging up to 1700 degrees, is incorporated as an integral part of the floor model unit itself.

In operation, the floor model safe-Kardex "60" is an inverted Kardex cabinet on wheels. Provided is full portability to the executive's desk for analysis or review of as many as 1,254 records at a single time, silently, quickly, easily.

The individual slides are ejected by a slight pull. When they are fully extended they drop into a flat, horizontal convenient posting or reference position. Among the advantages of this arrangement are rapidity and convenience of operation, a saving of floor space, and an unusually attractive appearance whether the units are used singly or in battery formation. Product of Remington Rand, Inc., Buffalo, N. Y.



TOWEL DISPENSERS

■ Two types of completely molded plastic towel dispensers for ScotTissue towels are being leased by the Scott Paper Company, Chester, Pa., and its agents to customers desiring a deluxe type of towel dispenser.

Bakelite and resinox were selected for the towel dispensers because of the many qualities inherent to these materials that makes them ideal for this purpose. First of all they cannot rust or corrode. This is of primary importance for material that is subjected to the damp conditions under which a towel dispenser is ordinarily used. Not only are resinox and bakelite non-corrosive, but they actually shed water like a duck. And they are equally resistant to ordinary acids and alkalis. Alkaline cleaners are generally used for cleaning the walls of washrooms. Consequently towel dispensers hanging on these walls frequently become spattered with these cleaning solutions. The ability for a towel dispenser to resist the corrosive action of these solutions is, therefore, as important as its ability to resist water. Furthermore, these dispensers are as impervious to other solvents that might be spilled on them as they are to water. Alcohol, hair tonic, antiseptics and other medicines all wipe off without leaving tell-tale marks.

Another important quality of the towel dispensers is that they are non-inflammable. Carelessly placed matches or cigarettes offer no hazard as far as the dispenser is concerned. In fact, the streamlined design of the dispensers makes it practically impossible to place lighted cigarettes on them.



FOR SWIFT, UNINTERRUPTED PRODUCTION OUR DEFENSE SUPPLIERS RELY ON CLIPPER BELT HOOKS AND LUBRIHIDE PINS

There's no time for production delays in our defense program. That's why most defense suppliers use Clipper Hooks and LUBRIHIDE Pins for lacing power transmission belts.

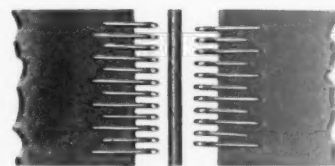
Lace your belts the Clipper way, and they will run for long periods without even a pin replacement.

Clipper Hooks are made of special fatigue-resisting steel

wire. When properly imbedded with a Clipper Lacer, they give remarkably long service.

Clipper LUBRIHIDE Pins have BUILT-IN lubrication. Friction is eliminated. Pins resist grooving. Hooks last longer. Users have found that belt joints continue in service 2 to 4 times longer when Clipper Hooks and LUBRIHIDE Pins are used. Order from your mill supply jobber.

CLIPPER BELT LACER COMPANY, Grand Rapids, Michigan, U. S. A.



Each hook is independent, assuring flexibility crosswise as well as lengthwise. Double staggered points prevent damage to belt.

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BELT LACING

EQUIPMENT

When writing Clipper Belt Lacer Company please mention Purchasing



These are truly the days when service is reflected by the foresight and progressiveness of the past—when the keeping of one's house in order during depression periods now pays dividends to customer, dealer and distributor.

The piling-up of unfilled orders, the mad scramble for raw materials and machinery, the breakdown of production facilities, the broken promises on deliveries—all these are the result of lack of confidence and stability, and of delay in the preparation of proper service perspective during slow periods.

For almost a century—since 1845—R B & W has pursued an inflexible policy of keeping its house in order. During many depressions, many booms—and many wars—R B & W has constantly built a background of plant facilities, production methods, raw material sources, and sound sales-engineering service—in bad times as well as good.

Today, therefore, R B & W can offer a true service perspective and is in an enviable position to help those needing stable facilities for bolts, nuts and other threaded industrial fastenings.



RUSSELL, BURDSALL & WARD
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315

SAFETY LADDER EQUIPMENT

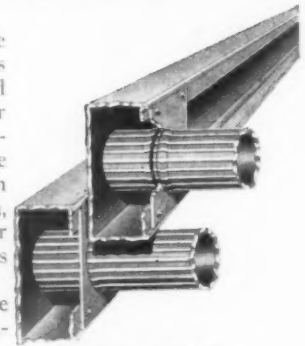
■ It has been apparent for some time that while aluminum ladders are used in many instances and have many advantages in their favor, still most past developments in all metal ladders have been of such a nature that from a standpoint of cost and design, their adoption as replacements for wood ladders has not been as rapid as it should be.

These Series F ladders, made by Duo-Safety Ladder Corporation, Oshkosh, Wis., were designed to do just such a thing—to substitute wood single and extension ladders with similar aluminum ladders at reasonable costs.

As shown in the accompanying illustrations, a special extruded Duralumin channel is used. A side plate is riveted on the inside of the channel at each rung spacing. Each rung is welded into the side of the channel on the outside of the ladder and each rung is also internally expanded on both sides of the side plates.

Special double pronged steel feet are used and the top retaining brackets on extension ladders are of pressed steel faced with fibre to prevent abrasion or wear.

The advantages claimed for this ladder as a substitute for wood ladders are as follows: 1. A ladder much lighter in weight. 2. A stronger ladder as this new channel construction is many times stronger than a similar wood ladder rail. 3. Less maintenance costs as these metal ladders will not bruise, sliver or require refinishing. 4. A safer ladder as there is no danger of the ladder suddenly breaking.



Cutaway section of Duralumin channel.



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■ A page is easier to read if it is propped up at an angle. This binder, manufactured by The Barrett Bindery Co., Chicago, Ill., can be used flat, at a 25-degree angle or 65-degree angle, whichever is most convenient for each particular use. It sets up and closes in a moment without the use

of snap buttons, gadgets, or anything of similar nature. It is convenient to hold with one hand, without any danger of its slipping off, because the outer cover folds to form a support.

Can be supplied specially with any type of mechanism, such as Swing-O-Ring, multiple ring, Tally Ho; also without mechanism but with pockets to hold sheets, mechanically bound in plastic, cercla, cerflex, spiral, wire-o, etc. Can be made specially to order in any size, grade, color, capacity or number of rings.

SOLDERING IRON

■ This industrial soldering iron contains an element that can

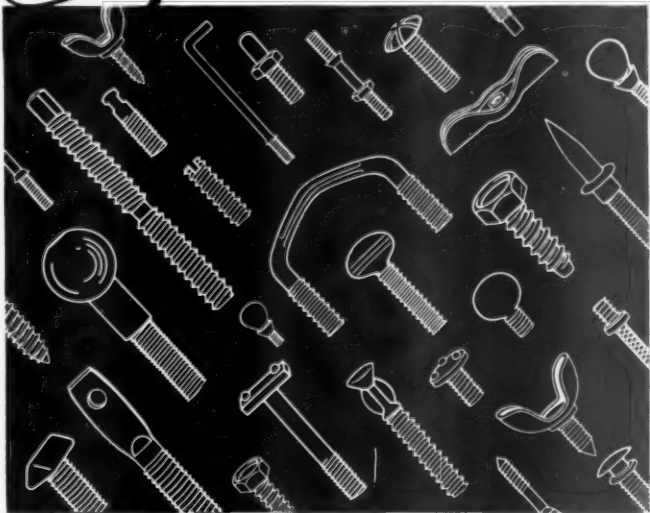


be replaced in 30 seconds. It can be removed by simply loosening the lock nut. The element and handle assembly are connected electrically by means of spring contacts. The elements and tips are interchangeable. The elements are wound with Driver Harris Nichrome 5 on soft amber mica. Irons are chrome plated. Comes complete with 6 ft. Belden heater cord, soft rubber plug and large stand.

Product of Drake Electric Works, Inc., Chicago, Ill.

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★ Gain the economy of cold upset and rolled-thread specials, accurately manufactured in productive quantities at Central. Our engineers are ready to give you full cooperation in the development of special products. Write today.

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Strip of 10-ply Conformable KIMPAK* cut to 80% of length of edge to be protected.

By gripping the KIMPAK with thumbs and forefingers at center of end, stretch strip about 25% — a trough shape results.



Note how trough shaped strip of KIMPAK now readily conforms, fitting neatly over door edge.



The door is closed on the KIMPAK, eliminating necessity of tape. KIMPAK acts as a gasket protecting door edge and frame.



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• The above illustrations show how *Conformable KIMPAK* is applied to porcelain enameled range doors and drawers; similar packing problems are as easily solved with *Conformable KIMPAK*.

Conformable KIMPAK answers the need for a neat, quickly-and-easily-applied packing protection for products with irregular shapes. *Conformable KIMPAK* has all the safety features of famous KIMPAK Crepe Wadding, plus new and unique characteristics of immediate significance to manufacturers of irregular shaped products.

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Installed in the waste compartment is a wringer, consisting of two rollers, easily operated by a slight touch of the fingers, which, by placing the brush between the rollers and drawing same upward extracts the surplus paint from the brush after being used, or the preserving fluid before using. Clips are so arranged over each compartment with small pegs from which to suspend one or more brushes of various widths and lengths in each compartment, containing a preserving fluid.

INDUSTRIAL HAND CREAM

■ A protective hand cream for industrial workers has been put on the market by the Cromo Laboratories, Inc., Garfield, New Jersey. This cream spreads easily over the skin, providing a film of low surface tension. It will remain stable in the presence of most chemical agents and it is not transferable from the hands to other objects as it dries completely. It is



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Since the original patent expired there have been many lacing that looked like Alligator. But fortunately for Alligator the making of belt lacing is a highly specialized job. Years of research, backed by thousands of dynamometer tests plus better alloy steels and the constant improvement in die making and stamping practice, have been responsible for these extra belt lacing hours.

Every plant should have a supply of Alligator steel belt lacing on hand. Twelve sizes for flat belts of all types up to 3/8" thick. Special lengths for wide belts. Also made in "Monel" and "Everdur." Order from your supply house.

FLEXIBLE STEEL LACING CO.
4697 W. Lexington St., Chicago, Ill.

ALLIGATOR
TRADE MARK REG. U.S. PAT. OFFICE
STEEL BELT LACING

15 EDITIONS and still going strong

● Here is a 72-page pocket size manual, "Short Cuts to Power Transmission," that presents a wealth of practical information about transmission and conveyor belts. Offers pointers on how to care for belts, methods of lacing, how to repair conveyor belts, etc.

WRITE FOR YOUR COPY

not hygroscopic, it will not dry the skin, it will not break up or allow penetration of chemicals through itself, it is slightly absorbed into the skin, filling hair follicles with inert but easily removable substance. It is insoluble in water but easily removable with the lather of ordinary soap. It is priced economically so that quantity purchases will greatly lower safety expenditures, effecting substantial annual savings.

GRAPHITE PASTE



■ This graphite sealing compound for thread and gasket connections on lines carrying oily liquids and high pressure steam, is now available in a new handy kit size can with a brush applicator in the lid.

This package containing $\frac{5}{8}$ lb. of graphite paste made by Key Company, East St. Louis, Ill., is approximately $2\frac{1}{2}$ " in diameter by 4" tall and can be conveniently carried in tool kit or tool box. Inside, attached to the lid, is the brush applicator which eliminates the need for paddle, stick or extra brush to apply the compound on the thread or gasket.

The paste expands when heated and is ideal for high pressure steam lines and for all steam plant and boiler connections . . . or where high temperature service is required. It requires only water for

up with this sealer are easily disconnected without damage to threads or gaskets.

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It looks important because it is important, this handsome Model L Boston Pencil Sharpener. There need be no gift problem for your organization this year. Select one of the fourteen different Boston models (or select a variety, if you wish to) and give the gift that keeps on giving throughout many years of service.

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And here are good reasons for so doing: For by ordering "Hallowell" Benches, you get just the style or model you need in less time and at less trouble and cost than it takes to build one . . . and you get a better bench in the bargain!

"Hallowells" bring you the advantages of permanently smooth, wear-free tops . . . lasting rigidity . . . easy movability which permits flexible shop arrangements. And they're easy to keep clean, can't soak up oil or eventually splinter into kindling as will wood benches.

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Fig. 992

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HARDNESS TESTER

■ The improved portable Brinell meter illustrated simultaneously makes impressions in a reference bar and the material to be tested. The outfit consists of an instrument within which to nest a standard reference bar. The standard reference bar is supported in contact with a standard 10 millimeter steel brinell ball. The assembly is then placed in position on the surface of the material to be tested.



A plunger projecting from the instrument is given a sharp blow with a hammer. The brinell ball produces a simultaneous impression in the bar and in the surface of the material under test. The impression diameters are then compared and by reference to a direct reading hardness table provided for the reference bar, the brinell hardness of the material is quickly noted. By the same token the tensile strength of the material is quickly computed. The instrument is equipped with a binocular sight bar spacer by which to uniformly space impressions on the test bar. The outfit is enclosed in a carrying case $6\frac{1}{2}'' \times 9\frac{1}{2}''$, and weighs $6\frac{3}{4}$ lbs.

Product of Louis C. Eitzen Co., New York, N. Y.



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■ This practical insurance against overtime expense on long distance telephone and teletype calls is the *Tele-Trol*. An attractive desk model suitable for every type of business, that will effect a large saving in telephone and teletype costs. Simply touch the lever when your party answers your call and

an automatic chime warns you in ample time before 3 minutes (long distance) period expires, allowing you to close your conversation before incurring overtime expense. The indicator will continue on, should it be necessary to time a call beyond 3 minutes. Developed by Holcomb & Swenarton, New York, N. Y.

WELDING ROD

■ The American Manganese Steel Division of The American Brake Shoe & Foundry Company, Chicago Heights, Ill., has introduced welding rod, described as a low cost manganese-molybdenum steel welding rod for building up worn high manganese carbon steel and grey iron castings. It is available in 18" lengths in the bare form for straight d.c. welding and in the combination coated form for both d.c. and a.c. applications.



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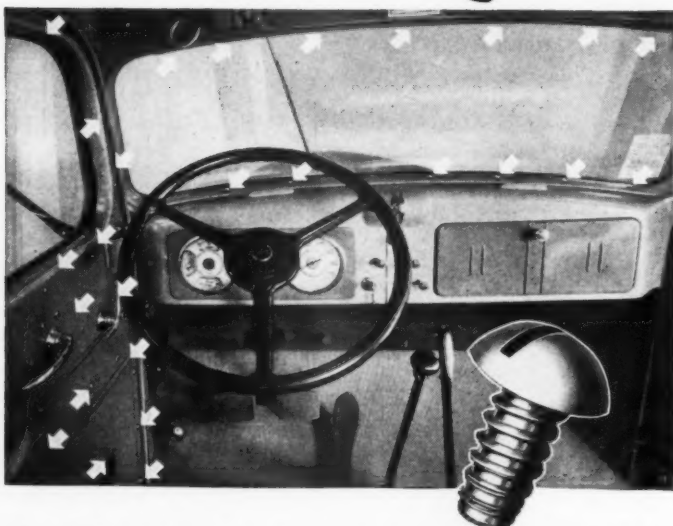
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You avoid the "doubtful few" when you buy Parker-Kalon Screws because these Screws are made to high standards maintained and guaranteed by the famous Parker-Kalon Quality-Control Laboratory. Thus every Screw that comes from the modern Parker-Kalon plant works right and holds tight every time. No wonder over 100,000 concerns use these time-and-labor-saving Screws today. Mail coupon for free samples to: Parker-Kalon Corp., 202-204 Varick St., New York, N.Y.



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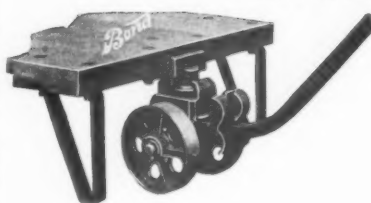
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LIFT JACK



■ It's as simple as A B C to put your platform skids on a high speed, low cost basis with this lift jack. It is as simply designed as it is rugged. This jack is built to stand the severe duty to which a

handling unit of this type is subjected without breaking down at crucial moments. It is wholly "gadgetless"—two parts, the tongue handle and the jack body, in addition to the wheels, comprise the entire unit. There are no springs, toggles or releasing levers to get out of order. The handle moves to either side when operator wants to disengage jack pin from skid coupling.

One of the important features of the design is a projecting flange on the jack. This flange is curved to engage flange on coupling, which automatically engages pin when handle is lowered. No lining-up or exact positioning is necessary. Should the handle be dropped accidentally, even with the truck empty, this exclusive flange design prevents the jack from becoming disengaged from coupling. The possibility of handle falling on operator's foot and causing injury is eliminated. Manufactured by Bond Foundry & Machine Company, Manheim, Pa.

HIGH VACUUM GAUGE

■ A Portable High Vacuum Gauge with a range from 0 to 700 microns and calibrated down to 1/10 micron is being marketed by F. J. Stokes Machine Company, Philadelphia, Pa. This gauge is a similar instrument to their original portable high vacuum gauge (calibrated from 0 to 5000 microns) but

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covers a narrower range for reading more accurately vacuums of 700 microns or lower, brought out about a year ago. It is slightly larger and heavier and utilizes the same well-known McLeod principle of operation. It is designed to enable any unskilled operator to take readings quickly and accurately and is built to withstand hard service and constant handling without danger of breakage or damage.

With this gauge single readings can be taken in a few seconds and a series of successive readings requires not more than ten seconds each.

AUTOMATIC ADJUSTABLE CHAIRS



■ The chair illustrated is designed to insure correct posture, and is especially suited for those who constantly are seated at their work. Seats are instantly adjustable and self-locking. No ratchets or tools are required. The hard wood seat, molded to fit body conformation permits real comfort.

Adjustable range is 17 to 21 inches with full seat swivel and swivel casters. Seat and back finished median brown, metal parts olive green enamel. Product of Kewaunee Mfg. Co., Kewaunee, Wis.

BALL BEARING "MODERN" MOTOR DRIVES

■ Ball bearing equipped modern motor drives are announced in a complete new line of individual motor drives by Quality Hardware and Machine Company, Chicago, Illinois. This series includes fifteen models for lathes, shapers, milling machines, and turret lathes.

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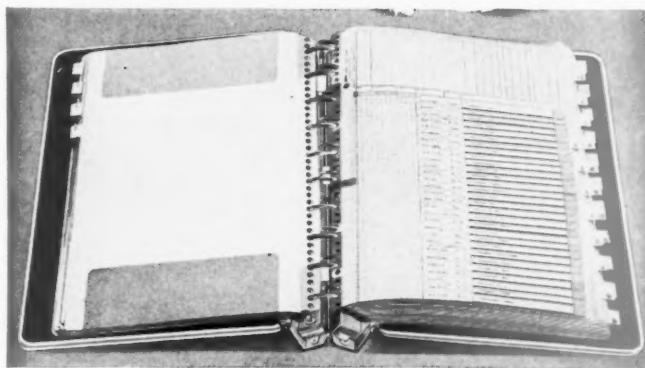
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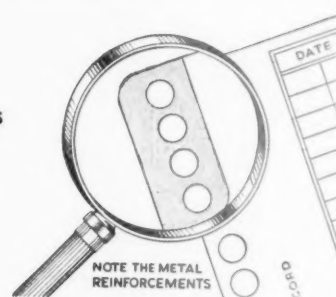
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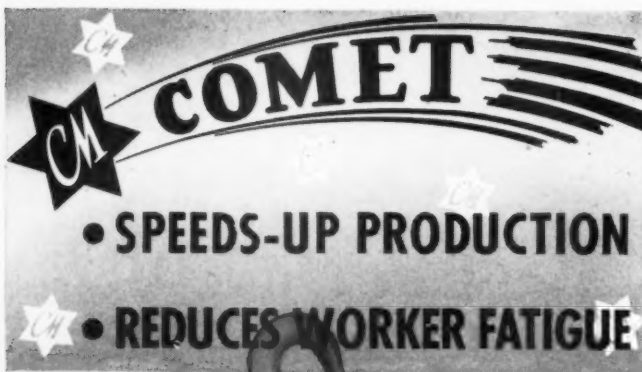
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drives on cone pulley machines to individual motor drives. The drive is a complete, self-contained unit, including motor mounting, that is easily applied by means of four belts.

"V" belts are used for the motor drive to the counter-shaft, which runs in two ball bearings, the final drive being by standard flat belt.

SORTING RACKS



■ A sorting rack made from steel has been placed on the market by Lyon Metal Products, Inc., Aurora, Illinois.

One of the features of the rack is a recessed bottom, which permits racks to be securely stacked, as shown in the illustration. Another is the

hand removable shelves, which are adjustable every half inch.

It is equipped with nine 11 1/3" wide shelves, and a full width base to form 12 compartments. Each removable shelf has a labelholder 1/2" high by 2 1/2" long. The base is fitted with a 1/2" high labelholder which runs nearly the full width of the rack.

Spot welded construction has been used throughout to make a rigid piece of furniture. Each rack is 34 1/3" wide by 11 1/2" deep by 10 5/8" high.

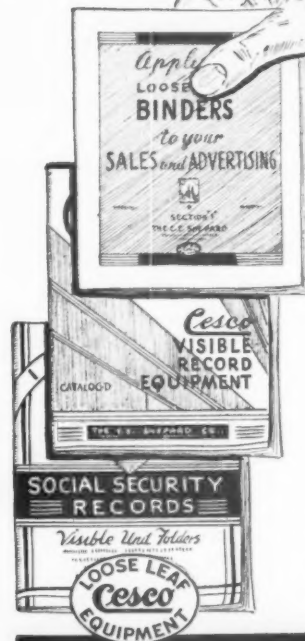
PAINT CONDITIONER

■ A paint conditioner for industrial plants and the paint trade has been placed on the market by the Diamond Iron Works, Inc., of Minneapolis, Minn.

This one arm mixer is full roller bearing and of rugged construction. Built in two sizes, one for cans or buckets up to

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one gallon, and the other from two to five gallons.

These mixers operate on a reverse action principle, breaking up circulating currents by creating a powerful slushing effect that quickly conditions even old stock. The motion mechanism is completely enclosed with lubricant reservoir giving splash lubrication to all bearings.

The purpose of this mixer is to thoroughly condition paint in cans or buckets irrespective of the time it has been in stock. Saving mixing time and bringing out the true color in a uniform mix ready for use or blending.

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■ **This dispenser** is the product of a company which has had over 35 years successful experience in the manufacture and distribution of various cleaning materials and machinery.

Cleaning powders have the tendency to bridge and they require agitation, but agitation alone will not distribute the powder in the small quantities required for hand cleaning. For this reason the application of a small feeder in the bottom of the dispenser makes it possible to get just the correct amount of powder. In other words, the dispenser gives a sufficient amount of powder

but prevents the dispensing of an excessive amount. Manufactured by Finnell System, Inc., Elkhart, Indiana.



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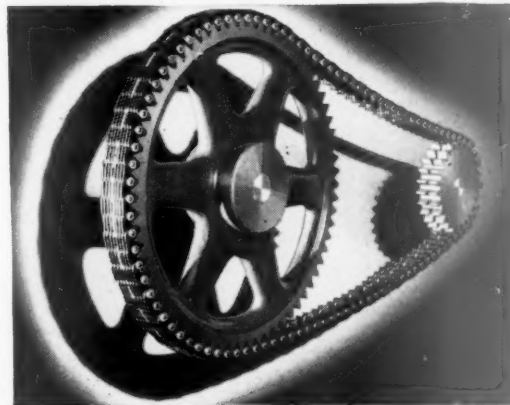
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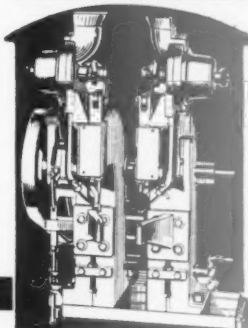
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Special Low Wings



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Special Broad Base

■ Having successfully manufactured a standard pattern line of one-piece stamped wing nuts which have met with considerable favor for the past few years, Central Screw Company, Chicago manufacturer, has expanded its operation on this type of product to meet the growing demand for special sizes and shapes required out of stock by the general trade.

Illustrations show the new Type 16 wing nut with special low wings, the Type 3 standard pattern wing nut, and the Type 10 broad base wing nut, the latter being especially designed to eliminate the need of using a washer, insuring an adequate self-bearing surface on assemblies where it becomes necessary to bridge long grooves or large openings. The rounded edge of the broad base wing nut eliminates scoring invariably caused by heavy pressure or changed position of ordinary wing nuts.

COAL ACCELERATOR

■ A coal accelerator which unloads a car of coal in one-half the usual time has been placed on the market by Stephens-Adamson Mfg. Co., Aurora, Illinois. It accelerates unloading of high moisture content coal, frozen coal and moist slack heavy in "bug dust."

At the Logan, West Virginia, plant of the Appalachian Electric Power Company, coal known as ¼-inch slack, containing a major portion of "bug dust" combined with moisture, formed a very dense mixture which caused considerable difficulty when being fed from bunkers to screw conveyors and

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from bunker to boiler scale. Prior to the installation of the coal accelerator, man power had to be taken from other important duties, four men had to be employed one full hour, to bring the contents of a 70-ton dump car of this coal down the track hopper. With the adoption of the accelerator, the unloading of the 70-ton car required only about one-half the time previously needed, and only two men were needed in the car to do manual labor while a third man operated the accelerator.

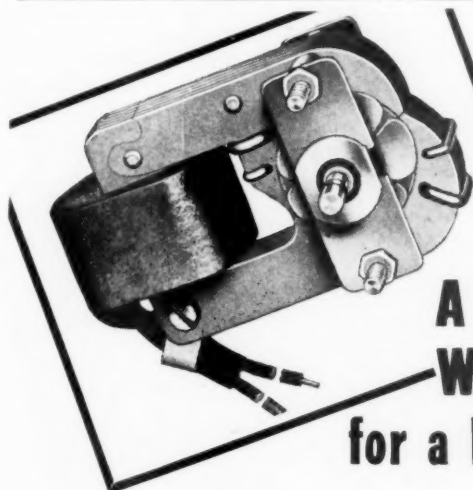
INDUSTRIAL GLOVES



■ After more than a year's daily use by offset plate makers and by offset pressmen in a mid-western plant, these industrial gloves of Du Pont Neoprene show no actual failure other than a tiny break at the right thumb.

During the year, the gloves gradually became checked and roughened under the violent action of the acids used, but the resistant Neoprene surface did not yield elsewhere on either glove, even when closed at the wrists and tested by compressed air.

Manufactured by the Pioneer Rubber Company, Willard, Ohio.



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IF YOU are out to clean up a miniature-motor-power problem, be sure to run a test with the economical, precision-built, high-torque GI Type C5 Motor. With speed torque tailored to your application, this money-saving miniature motor gives you dependably sturdy and constant speed, maintained against steady or varying load requirements. You can count on it for extra service life in moving displays, fans, ventilators and similar applications. One of the newest of the large line of low-cost motors designed and manufactured by General Industries, makers of low-cost, high-quality light electrical apparatus for over 38 years . . . Fan-cooled, equipped with oil-less bearings. Made for all commercial A. C. voltages, 50 and 60 cycles. Test the new GI Type C5 in your own shops.



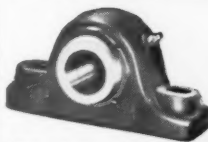
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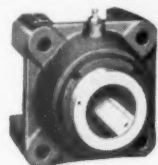
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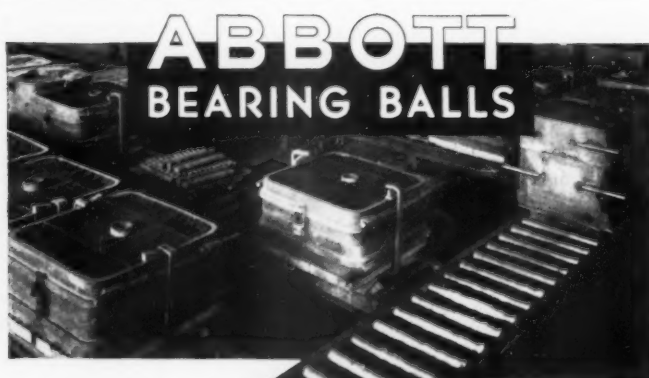
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Here's a tough application to prove it! In the roll bearings of this Logan conveyor, Abbott steel balls withstand the rigorous service characteristic of pouring and storage lines in a modern foundry.

"Fulfill every requirement of service and satisfaction," writes The Logan Company, basing their commendation on ten

years' use of Abbott bearing balls in conveyor installations for all types of industries.

Their stamina makes Abbott steel balls a sound choice for light or heavy duty assemblies. Order with confidence. We have the right grade for your purpose. Large stocks—prompt shipments.



The Abbott Ball Company
1058 New Britain Ave. Hartford, Conn.

*Unseen in use
yet always on the job*

ALLOY STEEL

■ A non-magnetic, free machining alloy steel possessing low magnetic permeability with superior mechanical properties has been developed especially for the electrical industry by the Jessop Steel Co., Washington, Pa.

This steel has a magnetic permeability of only 1.003 to 1.006 at 1000 Oersteds magnetizing force at temperatures from sub-zero to boiling. The illustration shows a piece of electrically magnetized iron at the right and a piece of non-magnetic steel at the left. Note that the lines of force (shown in iron filings) are all directed to iron sample at the right.



Another desirable property of this steel is its high electrical resistance (69 to 71 microhms per centimeter) which considerably reduces current addy loss.

In the annealed condition, this steel has a tensile strength of 80,000 to 110,000 lbs. per sq. in.; yield point, 35,000 to 60,000 lbs.; elongation in 2 inches, 25 to 50%; reduction of area, 30 to 60%; Izod impact value (at room temperature), 80 ft. lbs.

The steel can be readily formed, welded, machined or blanked. It can be used in transformer, controller and switch covers; entrance plates; spacing bars; end fingers; and numerous other parts of electrical equipment.



FOR ECONOMY

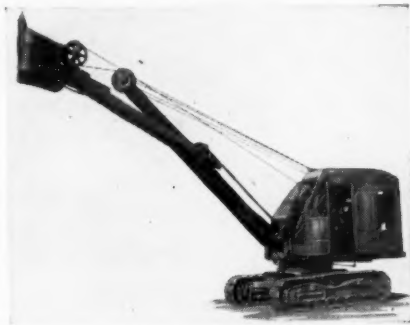
The "herringbone" pattern on SAFETEX Gummed Tape is embossed into the gum. This insures perfect moisture distribution from edge to edge across the width of the tape, eliminating bubbles and blisters while applying. These grooves make SAFETEX cloth-like and pliable and increase sticking speed and holding power. Result—permanent, efficient and economical sealing.

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HALF YARD SHOVEL



■ A powerful, full-size ½-yard convertible shovel-dragline-crane, has been placed on the market by Link-Belt Speeder Corp., Chicago, Ill.

Claimed for this new model are several advancements, which include self-aligning roller bearings on drum shafts, reverse

shaft and main power shaft; a new safety-type rapid boom-hoist for crane duty, with conventional worm-gear boom-hoist optional; fully enclosed traction gears running in oil; double fully-enclosed traction brakes controlled from the cab; a 56" machine-finished roller path turntable with roller bearing "hook" rollers; interchangeable clutches on drum, swing, retract and boom hoist; welded steel design for strength and resistance to shock load and to provide positive alignment of machinery parts; glass all around in operator's cab. The manufacturer particularly stresses the sturdy construction and reserve power in this new ½-yard machine.

AUTOMATIC RESET TIMERS

■ An almost unlimited number and variety of difficult industrial operations can now be precisely and economically controlled by the new series of automatic reset timers and time delay relays made by Paragon Electric Company, Chicago, Ill. The following types of uses suggest the wide adaptability of these instruments.

1. To close and then reopen a circuit.
2. The open and then reclose a circuit.

LINK-BELT *Silverlink* ROLLER CHAIN



Because it is available in either bronze or stainless steel, installations even in the presence of the acid fumes from a plating bath (as shown above) are safely made with Silverlink Roller Chain.

● High strength, great flexibility, accuracy, smoothness, stability and long life are features of Silverlink Roller Chain which help speed work and cut costs.

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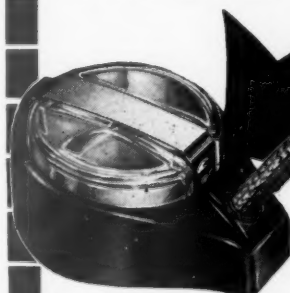
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(P-2)



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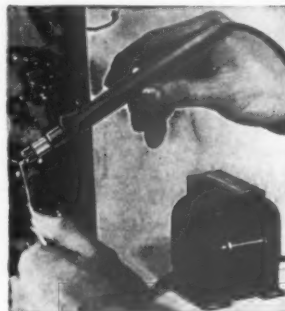
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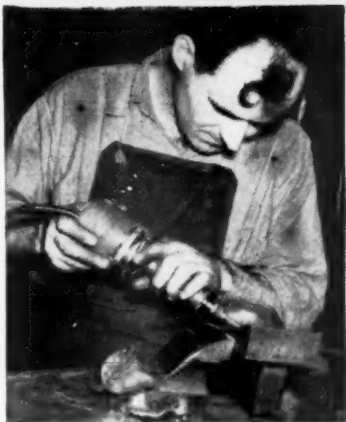
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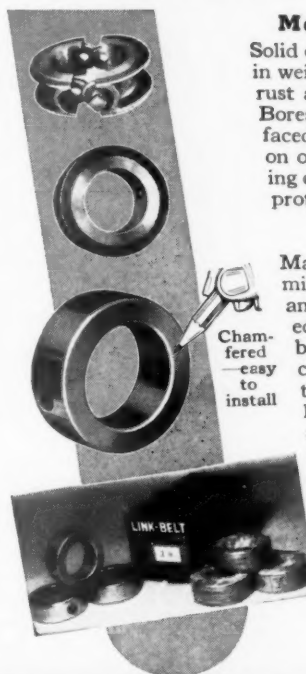
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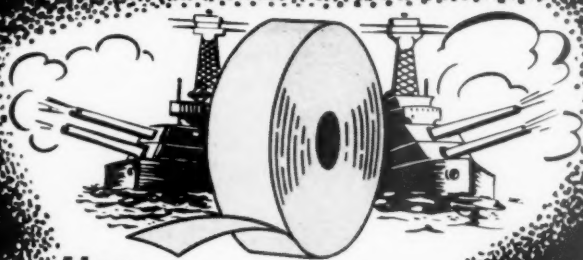
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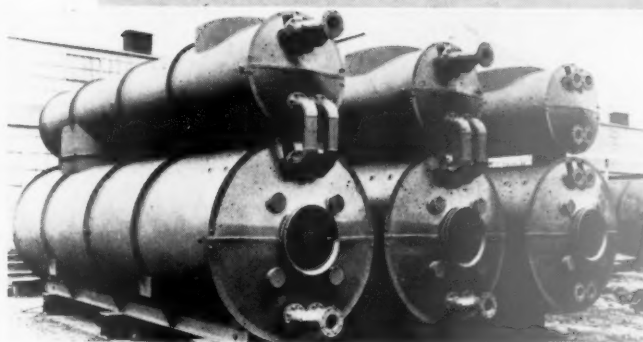
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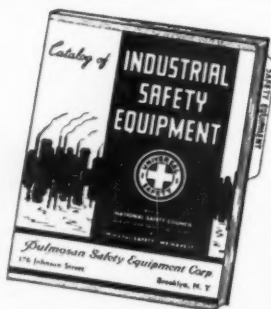
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Silhouette Studies

(Continued from page 54)

association which serves the Tri-State territory, after an introduction to association work and benefits with a group too distantly located to permit regular attendance or active personal participation.

A native of Columbus, Ohio, Mr. Meyer spent his boyhood in that city, graduating from high school and business college there. His first job was with the Kin-kade & Liggett Company of Columbus. Nine years with that organization provided a practical background of experience in accounting, costs, sales, production, and purchasing. This was followed by a year as estimator for the Ralston Steel Car Company, and an opportunity to do engineering design with the Architectural Iron & Wire Works at Wheeling (since merged with the J. E. Moss Iron Works). Seven years in this capacity resulted in a further widening of experience on the technical side, with evenings spent in study to keep abreast of the new type of work.

He came to the West Virginia Rail Company as an auditor, was subsequently appointed credit manager, and in 1923 was asked to organize a purchasing department for the company. He has headed that department ever since. Those who know him only as a successful purchasing man may not have been wholly aware of the broad industrial background and long experience upon which the purchasing career is based.

One of his early moves in purchasing was to join the Pittsburgh Association, an affiliation which he maintained for seven years, though the 200-mile distance from his own headquarters was a serious handicap and his attendance at local meetings was necessarily infrequent. Eventually, however, with other buyers of the district, he initiated the formation of the Tri-State Association, and since that has been accomplished he has taken a most active personal part in association work. An idea of his contribution may be gleaned from the record—in the six years since the group was organized, Arthur Meyer has served two terms as President, two terms as National Director, and two terms as Secretary.

No hobbyist, he gets a lot of fun out of flowers, bowling, and "tinkering." He is also a past president of the Huntington Exchange Club. The Meyers have one son, married and living in Detroit.

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published by the All-Steel-Equipment Company. It covers stacking boxes and units, steel and shop boxes, tool XXX equipment, taper pans and lockers.

4- Pump Materials—Allis - Chalmers Mfg. Co. has issued a four page leaflet, dealing with the effect of water conditions on the selection of pump materials. It points out the necessity of investigating the type of water to be pumped.

5- Painting—American-Marietta Company discusses the preparation of various types of surfaces, followed by suggestions of the correct paints to employ as priming coats, secondary coats and finishing coats, on such surfaces as brick, concrete, woods, metals, felt, tar paper, linoleum, glass and slate.

6- Steam Traps—Valuable information and help for anyone operating steam using equipment is contained in a book entitled "How to Choose a Steam Trap" published by The V. D. Anderson Co.

7-Metal Cutting Saws—development in metal milling efficiency is fully illustrated and described in a folder issued by the E. C. Atkins & Company. It covers the practicability and wide range of curled chip milling, segmental, hack and band saws.

8- Executive File—A file that practically hands you what you want is described and illustrated in a folder issued by the Automatic File and Index Co. Papers can be filed in a fraction of time because of the ever present "V".

9- Record Storage—How long should records be kept, is discussed in a pamphlet offered by Bankers Box Company. Setting record destruction dates, and a simple indexing system for storing and locating records are two important subjects covered.

10- Optical Aids—A catalog entitled "Optical Aids in the Metal Working Industries" is offered by Bausch & Lomb. This catalog covers microscopes, accessories and other optical instruments.

11- Pipe Tools—A helpful and interesting bulletin to any man who uses, buys or specifies pipe tools, is offered by Beaver Pipe Tools, Inc. Their various models are described and illustrated and exclusive features shown.

12- Ohmmeter—Quick, accurate, direct-reading can be had with the "Ducter" low resistance ohmmeter. It can measure ohmic resistances down to a few millionths of an ohm simply by applying a pair of sturdy hand spikes

and reading the position of a pointer over a scale. Product of James G. Biddle Co.

13- Hydraulic Equipment—Hand and power operated hydraulic equipment such as; hand and gauged-equipped jacks, inverted hand jacks, wheeled service and remote control jacks, maintenance assortments and pipe and conduit benders are fully described and illustrated in catalog No. 40, issued by Blackhawk Manufacturing Co.

14-Liquefied Gases—A descriptive catalog on handling and unloading plants for liquefied gases is issued by the Blaw-Knox Co. It fully explains purchase savings and handling economy for the users of anhydrous ammonia, butane, carbon dioxide, chlorine, propane and other hydrocarbons and liquefied gases.

15- Drill Presses—Helmet-head drill presses for lower cost industrial drilling and tapping are fully described and illustrated in a booklet issued by the Boice-Crane Company.

16- Bearings—Oilite bronze bearings, are illustrated in folder #A-40. The hydraulic cushion and controlled self lubricating features reveal the merit and high potentialities of the bearings. Complete specifications and prices are given by Boston Gear Works, Inc.

17- Electrical Connector—A handy method for the proper selection of electrical connectors including a method for making a survey of existing conditions of your electrical connections is described and illustrated in a guide book published by the Burndy Engineering Company.

18- Forms-Writing Machines—A machine for every writing problem, such as; general correspondence, forms writing, bookkeeping, check writing, billing, label writing, fanfold, card writing, addressing, etc., is fully described and illustrated in a folder by the Burroughs Adding Machine Company.

19- Machine Tools—Defense begins with machine tools. Tools made by Carboly Co., Inc., help Gisholt step-up production 30% on 1000 applications. 80% of these applications are steel cutting jobs. Some of these jobs in actual operation are pictured in their bulletin.

20- Air Conditioning—The adaptability of air conditioning to industry is amply illustrated in a sixteen-page catalog by Carrier Corporation. Complete equipment is shown from a window ventilator handling a few hundred c.f.m. to heat diffusers delivering b.t.u. in hundreds of thousands.

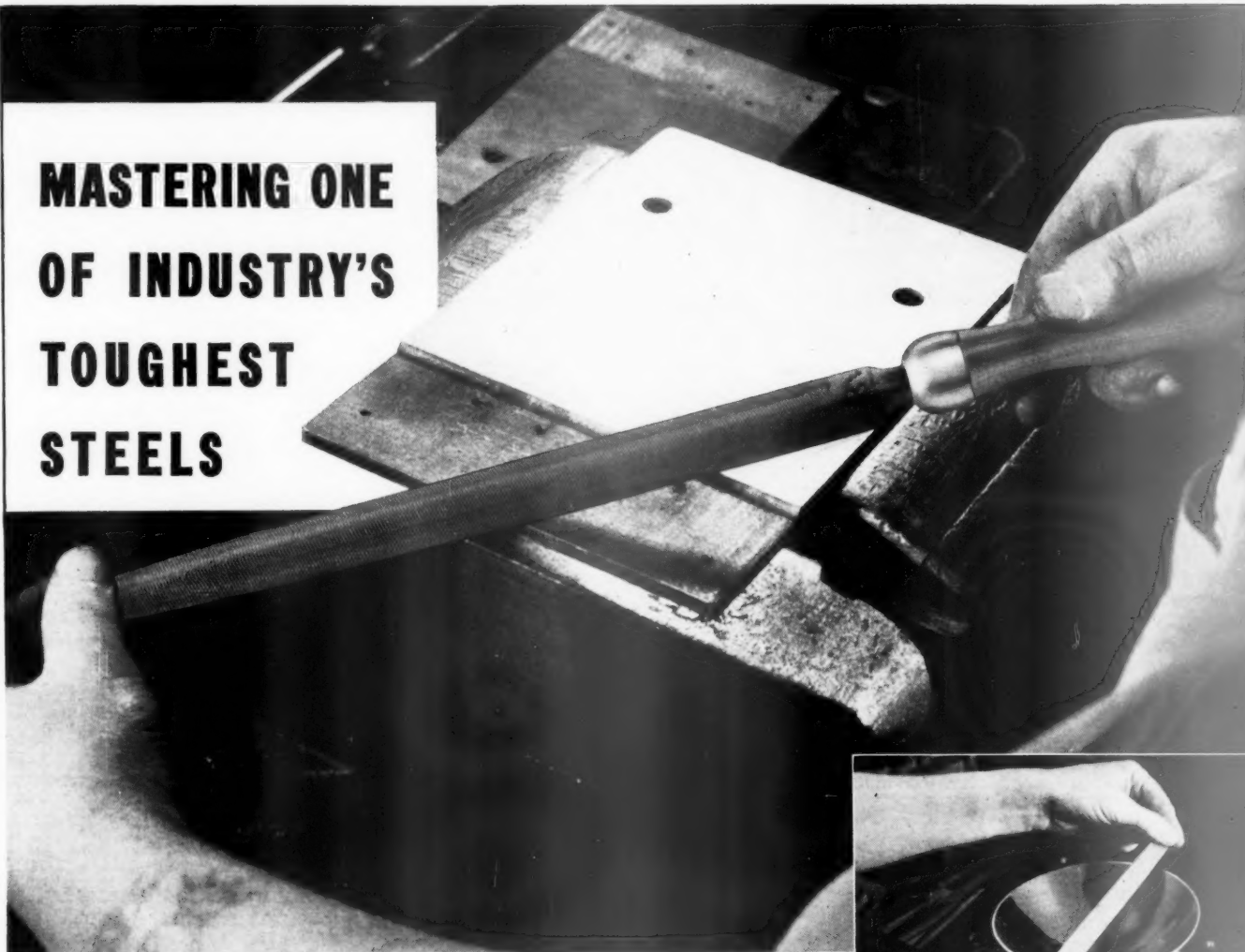
1- Lubrication—An analysis of lubrication problems and methods of meeting them effectively under high temperature conditions is contained in a technical bulletin issued by the Acheson Colloids Corporation.

2- Flame Cleaning and Dehydrating—An 8 page illustrated booklet on flame cleaning and dehydrating iron and steel is issued by Air Reduction Sales Corporation. It discusses the various problems encountered in the task of keeping the "Golden Gate Bridge" in proper condition, and the important part played by flame cleaning in the cleaning and painting of bridge steel.

3- Shop Equipment—Production aids to modern methods in materials handling are explained in an illustrated catalog

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21—Employee Conveniences—The complete line of vitreous china plumbing fixtures, water closets, lavatories, and urinals manufactured by W. A. Case & Son Mfg. Co., is covered in an illustrated catalog. It is permanent, clean, sanitary and resists acids and discoloration.

22—Christmas Tape—A sample book on Christmas tape with a number of attractive designs, their color, width, basic weight and yardage together with price list has been prepared by the Central Paper Company.

23—Portable Compressors—A complete line of two-staged air-cooled streamlined compressors are described and illustrated in a bulletin issued by the Chicago Pneumatic Tool Company. Specifications, dimensions and weights are included.

24—Milling Machine—A twelve page catalog fully illustrates the 28" vertical hydro-tel milling machine offered by the Cincinnati Milling Machine & Cincinnati Grinders, Inc. This machine combines maximum rigidity of structure, almost effortless manipulation, extremely efficient spindle drive and independent and non-related feed for table, ram and vertical head.

25—Hoists—Illustrations, specifications and prices of their complete line of hoisting equipment is contained in catalog No. G-3 distributed by Coffing Hoist Company.

26—Electrodes—Resistal stainless steel electrodes described in a folder issued by the Crucible Steel Company of America, will prove very helpful in selecting the correct electrodes for various welding jobs. Also included is complete list of available electrodes by name, grade, type number, and color of tip, together with analyses and price list.

27—Machine Tool Drives—Efficiency of old machinery can be increased to equal that of new equipment at low cost with the machine tool drives manufactured by Cullman Wheel Co. It has an individual motor unit designed to eliminate the countershaft and overhead belting arrangement formerly used to drive cone pulley machine.

28—For Metal Cutting Saws—DoAll Band Saws have many advantages. They cut fast and clean and are now available in sizes as small as $\frac{3}{8}$ and $\frac{1}{16}$ " wide. Also featured in their bul-

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29—Lubricating System—Farval Dualine, Jr. valve for centralized system of lubrication is described in a bulletin by The Farval Corporation. This valve consists of a central pumping unit, two main supply lines and an automatic measuring valve at each bearing.

30—Heating Coils—The line of K coils made by Fedders Manufacturing Co., Inc., presents the latest development of their spiral fin design. In addition to presenting the many advanced engineering features of these heating coils, their catalog offers a time-saving, working tool for men responsible for design of heating systems.

31—Controllers & Recorders—A folder entitled "Do Foxboro Instruments Really Save Money" includes excerpts from numerous letters explaining the benefits obtained from the use of such instruments as temperature controllers, verigraph weight recorders, pyrometers, and flow meter recorders. Foxboro Company.

32—Induction Motors—A series of bulletins on vertical solid-shaft induction motors has been released by General Electric Company. These are open-shielded, drip-proof, totally enclosed and fan-cooled.

33—Rubber Putty—Plastikon rubber putty is adaptable to many uses in building and industry. The B. F. Goodrich Company claims superiority of this putty over the ordinary types for many kinds of services lies in the fact that it retains a degree of plasticity for long periods, does not harden, dry out or crack.

34—Pump Hose—A saving on every gallon is yours with this completely oil-proof and weatherproof curb pump hose, a product of the Hewitt Rubber Corporation. It is soft, flexible, easy to handle and keep clean—built of synthetic, oil-proof rubber.

35—Lighting—A descriptive catalog covers the many problems for providing adequate lighting for protection of industrial plants against sabotage and entrance by unauthorized persons, as well as lighting for night production. Holophane Company, Inc.

36—Steam Cleaners—Hypressure Jenny steam cleaners are time and money savers on everyday maintenance and production jobs. Folder is offered by the Homestead Valve Manufacturing Co.

37—Transmission Belting—A catalog issued by the E. F. Houghton & Company, covers the proper use, care and selection of transmission belting together with engineering tables and data on power drives. Also featured in this book is their Vim tread leather belt.

38—Flourescent Lighting—New high levels of light both practical and economical can be had with fluorescent lighting. Soft, without glare, it provides the perfect working light—easy on the eyes, reducing strain and fatigue. Offered by Hygrade Sylvania Corp.

39—Metal Cutting Tools—An attractive ready reference indexed textbook of useful engineering data on metal cutting problems summarizing helpful data on the correct design, selection and use of metal cutting tools is published by the Illinois Tool Works.

40—Welding and Soldering Equipment—A complete range of welding and cutting torches and outfits, soldering outfits, gas and air torches and lead burning equipment is described in a twenty-eight page booklet issued by The Imperial Brass Manufacturing Company.

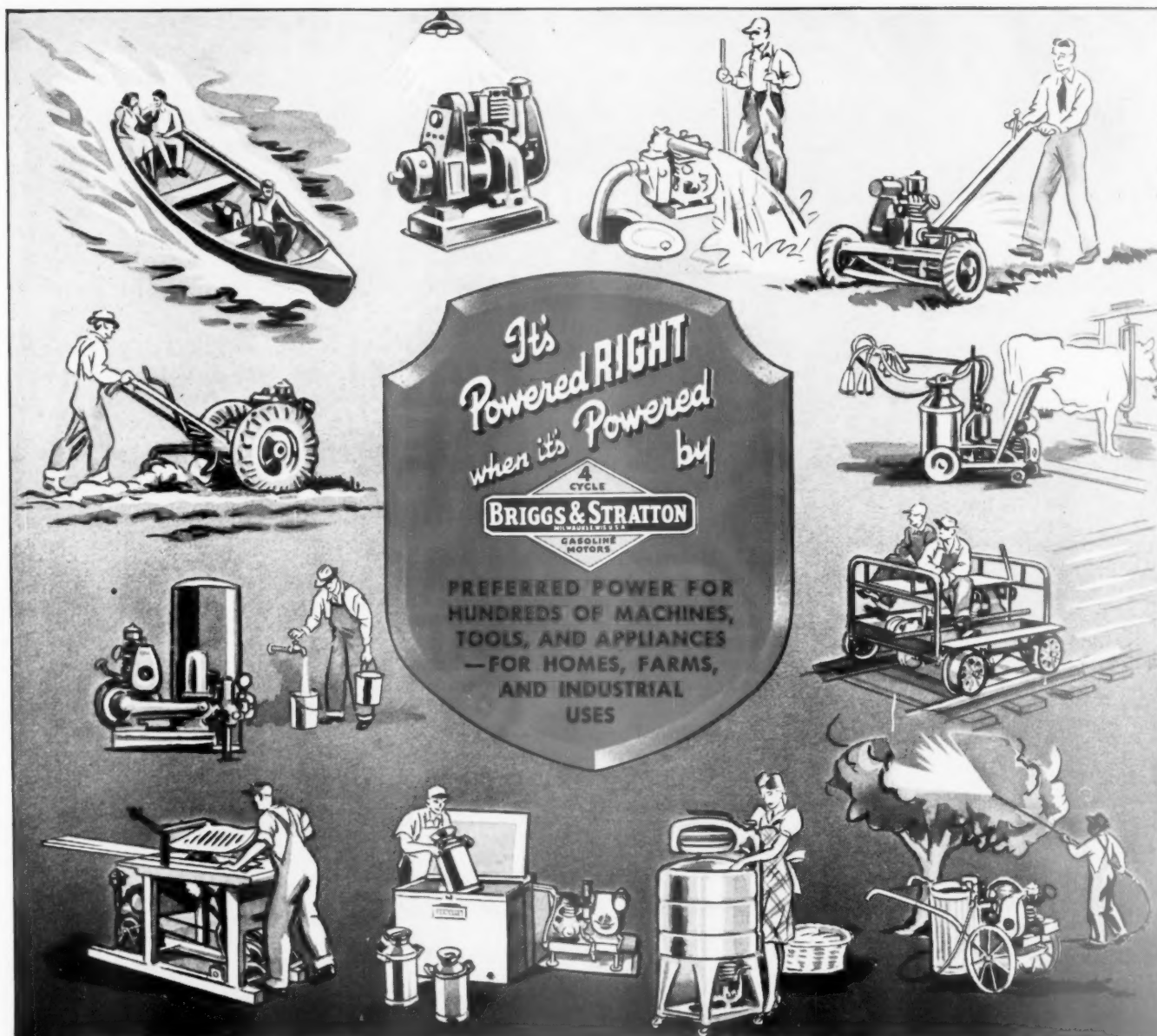
41—Power Units—Money saving power for many purposes, gasoline, natural gas, distillate and Diesel motors up to 110 horsepower manufactured by International Harvester Co. Their bulletin describes and illustrates the various motors and also contains performance charts.

42—Cleaning—It pays to keep all surfaces clean and free of dust. The vacuum cleaners manufactured by Invincible Vacuum Cleaner Mfg. Co., will clean out of the way and hard to get at places. This is the only cleaning method that can clean your plant properly and economically without causing dust-distribution.

43—Alloy Steel—A non-shrinkable, oil hardening alloy steel for use in tools and dies where extreme accuracy is required is described in a folder issued by the Jessop Steel Company. Also included is a chart on tempering range together with recommended heat treatment and typical applications.

44—Self Lubricating Bearings—Data sheets dealing with Ledaloyl, a self-lubricating sintered bearing manufactured by Johnson Bronze Company,

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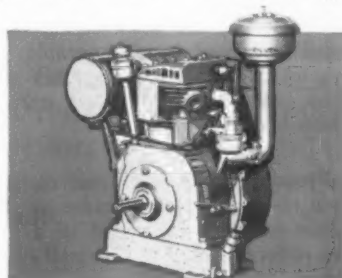
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are now available. Method of installation operating temperature, chemical and physical characteristics are explained.

45- Valves, Pipe Fittings— A catalog on valves, pipe fittings and fire hydrants is published by the Kennedy Valve Manufacturing Company. It covers bronze and iron body designs for every standard requirement on steam, water, oil, air and gas lines, with sectional views and part lists for every type of valve.

46- Packing Materials — A file folder of the Kimberly-Clark Corp. contains samples of twelve different types of Kimpak crepe wadding, a material of many industrial uses: for protection against shipping damage, absorbing leakage in shipments of liquids, insulation against cold and heat, and improving the eye appeal of packages with its clean white color and soft resilience. Available in rolls, pads and sheets.

47- Conveyor Chains— A conveyor chain especially adapted for dairies, ice cream plants, packers, warehouse and all uses of chain conveyors is described and illustrated in a folder by The Lamson Company. This chain is of all steel, flexes in all directions—runs horizontally, vertically and around corners.

48- Dispenser— The advantages of the senior gummed tape dispenser manufactured by the L. Link & Company, Inc., are shown in their folder. The operation of this machine is simple, fast and quiet. It is always set without making any adjustment and delivers instantly any predetermined length of tape perfectly moistened and cut at one stroke.

49- Hydraulic Lift Trucks— The lift truck manufactured by Lyon Iron Works is easier to operate because it elevates hydraulically rather than mechanically. This provides easy lift, easy control and easy handling.

50- Metal Working— An instructive bulletin issued by the Magnus Chemical Company, Inc., consists of a series of detailed performance reports from metal working plants of all kinds, outlining improvements and economies effected by the use of properly selected cleaning materials in comparison with formerly used materials and methods.

51- Drive Data— A useful drive data book for Condor whipcord endless belts is published by The Manhattan Rubber Manufacturing Division. It lists stand-

ard sizes of two styles of this endless flat belt which are carried in stock and are capable of handling drives from ¼ to 25 horsepower.

52- Stencil Machine— A folder issued by the Marsh Stencil Machines covers the advantages of using a stencil machine in your shipping department. They come in three sizes—1", ¾" and ½" and can cut a complete stencil in a minute.

53- Hoists— The many advantages of Speedmaster hoists is described in a folder issued by the Master Electric Co. They are adapted to all uses in raw material or storage, in receiving or shipping departments, for servicing machine tools and in handling process operations.

54- Cast-to-Form Dies— A metal for cast-to-form dies is covered in a four page illustrated booklet. It includes a table of properties, as well as a variety of applications and performance records. Product of Meehanite Research Corporation.

55- Gears— A fifty-two page booklet issued by the Michigan Tool Company, contains a number of articles on factors affecting gear production, including gear finishing, curve shaving, lapping hints and locating gear troubles.

56- Protection Suit— A durable rubber suit constructed to withstand the hard wear encountered in tunneling, mucking, drilling and other operations where the workman is continually subjected to unusual wet and muddy conditions is manufactured by the Mine Safety Appliances Company.

57- Roller Chain— A comprehensive catalog being distributed by the Morse Chain Company, contains complete information on the construction of the channel-lubricated, interchangeable roller chain, details of adaptations and applications, performance data and engineering information.

58- Paper Guide— A fund of information on all types and grades of paper used in offices is contained in a paper guide offered by the Neenah Paper Company. It describes the characteristics and uses of each grade, and contains sample swatches of various finishes.

59- Brushes— Brushes for sweeping, dusting and washing are described and illustrated in a folder by The Osborn

Manufacturing Company. These brushes are made of high quality materials and carefully designed for efficiency and long service. There's a correct brush for each cleaning job.

60- Rope Rigging— An informative pamphlet entitled "Lift It Safely" is published by the Plymouth Cordage Company. It contains numerous safety factors, service hints and application data.

61- Flexible Couplings— Data, dimensions and charts on flexible couplings manufactured by The Poole Foundry and Machine Co. are contained in a seventy page catalog. This coupling is simple in design, composed of few parts, which are easy to assemble. It is self-aligning, with no binding action at any point of its revolution.

62- Temperature Control— Automatic temperature control for diesel cooling water systems is described in a folder issued by The Powers Regulator Company. These controls are safe, fully automatic and easy to install.

63- Hoists and Trolleys— A booklet offered by the Reading Chain and Block Corp., describes their multiple gear chain block, screw gear hoists, and differential hoists. They will be glad to help you solve your materials handling problem.

64- Pencils— To eliminate point-breakage, the bogey of all pencil users, Reliance Pencil Corporation has introduced a five cent pencil called "Templar Durolead." The point is so reinforced, that even the most heavy-handed "point-busters" are frustrated. By actual test will withstand pressure of more than 250 times its own weight.

65- Building Products— An extremely wide range of proved steel building products are fully described and illustrated in a thirty page indexed easy reference catalog issued by the Republic Steel Corporation.

66- Bearings— A descriptive and illustrated catalog on metaline oilless bronze bearings is offered by R. W. Rhoades Metaline Company, Inc. These bearings are accurately machined for perfect fit and are made in halves so that, when fitted together a perfect cylinder or bearing results.

67- Ledger Paper— For records that must last a lifetime Danish ledger is the ideal paper. In addition to its strength and

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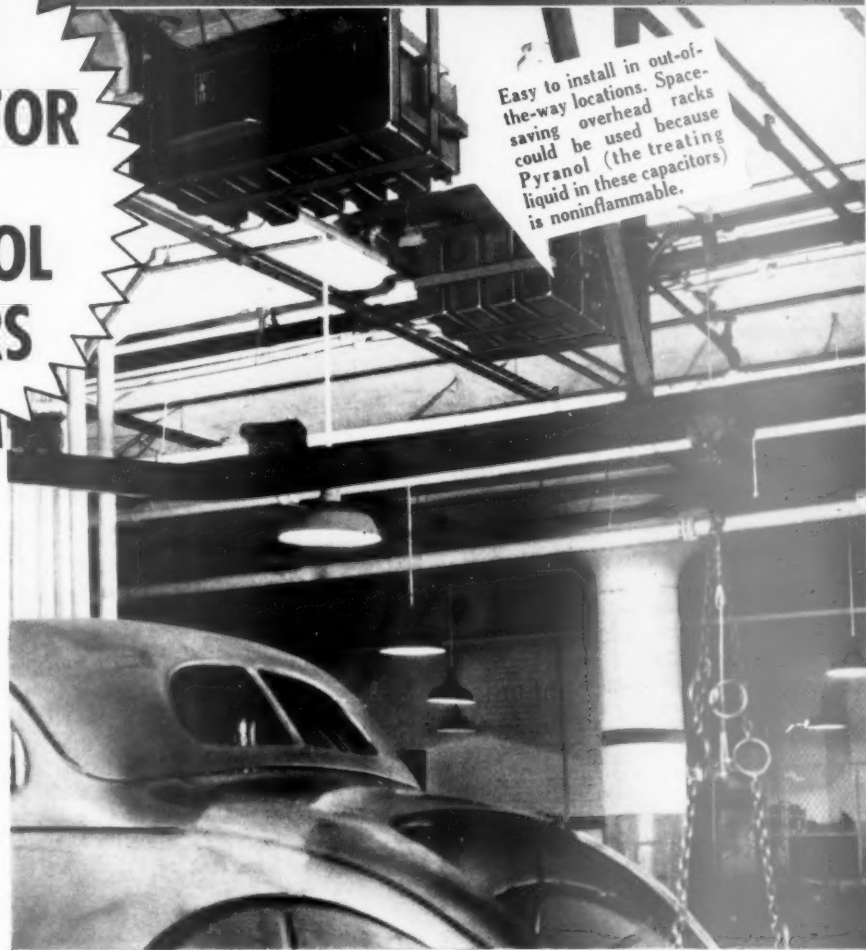
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DOES your plant use induction motors? Induction furnaces? Then the chances are that the power-factor is low—that your circuits are “clogged up” with a lot of reactive (nonworking) current. And that means that you can greatly increase the capacity of your existing wiring simply by installing G-E Pyranol capacitors on the lines. They neutralize reactive current and so permit the entire system to carry more useful current for additional motors and other equipment.

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permanence, it has all the qualities that are important for the proper presentation of insurance policies, deeds, mortgages, etc. Its surface is smooth and clean and will withstand repeated erasures, hard wear and constant handling. Samples are contained in folder showing the variety of weights and colors available. Rising Paper Company.

68- Ejectors—Style A ejectors (one coupling nut only), manufactured by William Sellers & Co., Inc., are especially adapted to water stations, wrecking derricks and logging engines, where the water tank is filled from a ditch or stream. Complete information is given in their text book entitled "Sellers Injectors."

69- Safety Goggles—Lenses for every industrial use are manufactured by Sellstrom Manufacturing Co. Densities of lenses for various occupations are listed in a comprehensive book.

70- Roller Bearings—A complete line of radial-thrust roller bearings, and self-aligning ball and roller bearing units for a full range of industrial and machine applications, is described in an illustrated booklet issued by Shafer Bearing Corp.

71- Precision Gages—A comprehensive presentation of precision gages—design, construction and application together with standards and constants useful in practical inspection work is issued by The Sheffield Gage Corporation. Manufacturers engaged in the

manufacture of engines, machine tools, automotive or military equipment, or any enterprise where inter-changeability of parts is essential, will find this book useful.

72- Hanger Bearing—Hanger bearings for screw conveyors manufactured by Stephens-Adamson Mfg. Co. are permanently sealed, lubricated for life, self-aligning, rust-resistant, prevent contamination, require minimum horsepower, strong, compact Meehanite housing cannot restrict flow of material.

73- Flexible Shafting—The various flexible shaft machines made by the Stow Mfg. Co., Inc., are shown in their catalog No. 40. Attachments such as hand pieces, angle heads, etc., are covered. Horsepower and torque tables are included.

74- Position Control—Valve position indicators are the solution to manual control problems as the precise settings, easily duplicated, means closer control and more uniform results. Send for catalog illustrating indicators manufactured by Tejax Engineering Corporation.

75- Bearing Lubrication—A comprehensive presentation of modern lubrication practices as applied to plain bearings is offered by the Tide Water Associated Oil Co. The laws of friction and the hydrodynamic theory of lubrication, as well as boundary lubrication and extreme pressure lubrication are described. The text is supplemented by schematic sketches and curves.

76- Treatment and Decoration of Cement Floors—A dye for concrete after it has been laid in place, produced by The Truscon Laboratories, uniformly colors the surface, lays the dust, makes the surface easy to clean. It is resistant and practically unaffected by most corrosive materials such as acid and alkali, waterproof and oil-proof.

77- Fluorescent Lamps—An 8-page illustrated folder describing Type F fluorescent Mazda lamps and their application for seeing, selling and decoration has been announced by the Westinghouse Electric & Mfg. Co. The operating principle is described and complete technical data is given in a handy table.

78- Reversible Ratchet—Reversible ratchet with R.H. torque indicating signal for use with standard "Supersockets," 1/2" square drive, manufactured by J. H. Williams & Co., is covered in a handy circular. Operating directions are included.

79- Power Transmission Machinery—The entire range of requirements of the power transmission machinery field, manufactured by T. B. Wood's Sons Co., is covered in an exhaustive manner in a 160-page book. Dimensions, diagrams, price lists are included.

80- Centrifugal Pumps—Vertically-split, single-stage volute centrifugal pumps for oil refinery service manufactured by Worthington Pump and Machinery Corp., are covered in a four-page circular. A table of capacities, heads and speeds is included as well as schematic diagram pointing out the many advanced features.

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NOVEMBER, 1940

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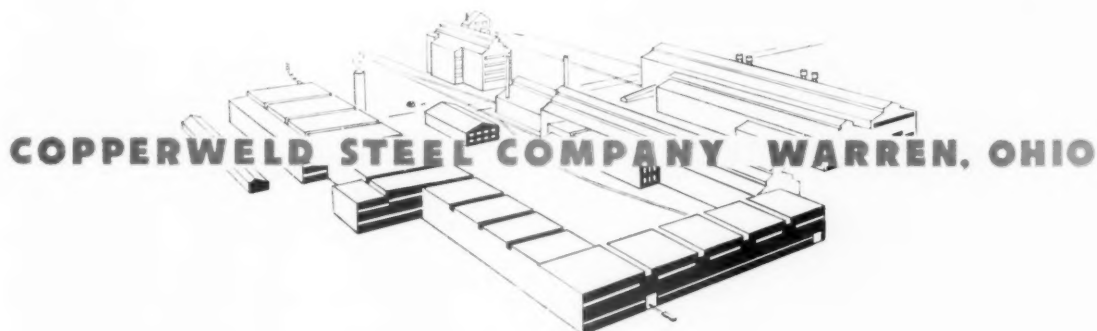
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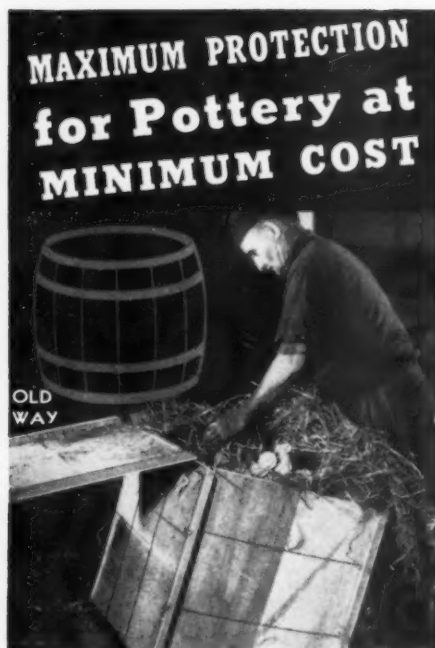
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F.O.B. *Philosophy of buying*

CITY P. A. Joe Lantry of Tulsa believes in the "blindfold test" as a measure of relative values. He tried it on several brands of coffee at the city jail and the clients voted for the least expensive variety. He used the city streets as a practical laboratory to determine which of fifteen brands of marking paint would be most economical for the city's use. Now he has proposed it as a means of choosing between competitive makes of tires for fire apparatus, soaking a stretch of asphalt paving and skidding the fire trucks to a stop. He hastens to add that the drivers will not be actually blindfolded, but they will not know what make of tires are on the truck when the test is made.

P. A. fans of the popular Sunday evening radio feature, "Take It or Leave It," were thrilled on the evening of October 6th when the master of ceremonies introduced Monsanto's J. W. Schinzing, whose portrait and biography graced these pages recently (PURCHASING, May 1940, page 38). It is scarcely necessary to add here that Mr. Schinzing proved to be the evening's outstanding performer and quickly ran his winnings up to the maximum of \$64.

PURCHASING Agents have long been concerned with finding a yardstick for measuring purchasing efficiency. On many points they may be in disagreement, but they will agree that the issuing of orders is not in itself a reliable measure of accomplishment. Deliveries, and not materials "on order", must be placed in evidence to show a procurement job well done. F.O.B. has full confidence that the program of procurement for national defense is being handled energetically and intelligently, but is disappointed that the publicity to date has been so largely confined to listing the contracts which are let from day to day and adding

up the billions of dollars of commitments. We believe that the vendors will come through in a manner to merit renewed pride in our American industry, yet we are reminded of the American engineer who was called in to take over the construction of a big power dam in Russia's first five year plan. He found a sadly disorganized mess, construction hardly started, and much of what had been done requiring re-doing. Yet he was blandly informed that the project was 75% finished, by the simple logic that three-quarters of the rubles appropriated for the job had been spent.

The first effect of placing a government contract is to toss the supply problem into the laps of industry's Purchasing Agents, who are directly responsible for getting the materials for production. These are mighty busy days for the P.A., and the conventional "nine to five" hours have long since been forgotten in today's crowded schedule. A recent business letter received from one of these buyers, instead of the usual closing phrase, carried this illuminating ending: "Excuse pen and brevity. 9:30 P. M. Good night. Bill."

CREDIT an assist to C. D. Proctor, Manager of Sales Development, American Type Founders Sales Corp., Elizabeth, N. J., for sending F.O.B. the comic sheet from the Sunday Herald Tribune (September 8th), detailing the sad story of a business venture by "Skeets," the popular juvenile. Skeets set up a lemonade stand at the corner—two cents a glass, and not far away his pal Button-Nose was retailing apples at two cents each. Trade being somewhat dull, and voicing the pious thought that "Us business men ought to deal with each other," Skeets invested in an apple. Considering this a very white action, making it only fair to trade in return, Button-Nose thereupon used the two cents to buy

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a glass of lemonade. The spirit of good will flourished apace, and business—between the two proprietors—grew pretty brisk until, at twilight, they found their stocks totally depleted, and compared the results of the day:

"I had a big day today, and lost two cents. How did you make out?"

"Sold out, and made exactly two cents."

The word "reciprocity" isn't mentioned in this saga of youthful business enterprise, and it is quite likely that the artist intended no moral to be drawn from his merry sketches. Nevertheless it is a piece of devastating satire, that may well give many a high-powered executive pause to think. It is ridiculous, of course, when a Skeets and Button-Nose carry on their affairs on this basis of fallacious logic. But the balance sheets may not be so different when their respective dads do serious and large-scale business on the same principle.

Half the world doesn't know how the other half purchases. The Philadelphia *Bulletin* of August 7th published a feature story by staff writer Maurice Ritter concerning Miss Esther Jenkins, P. A. for Montgomery County, Penna., who has been doing a very effective job in that position since it was created last January by the County Commissioners. The article remarks incidentally that no other woman Purchasing Agent for county or municipality is known of. But meanwhile, on the other side of the continent, the Sacramento *Bee's* feature writer, Ruth Ward, wrote an interesting story (September 7th) on Miss Nell Burke, who has been buying for Sacramento County, Cal., for the past seven years.

SOME industrial supply houses report that they are feeling the increasing tightness of industrial supplies—in their buying, but not yet in their selling. The chief criticism of this important industrial group has been their customary reluctance to build stocks in advance of demand. The present experience in itself is evidence that they are aware of their responsibility and of the situation into which we are heading. Distributors' stocks may prove to be a most useful reservoir for items in the supply field.

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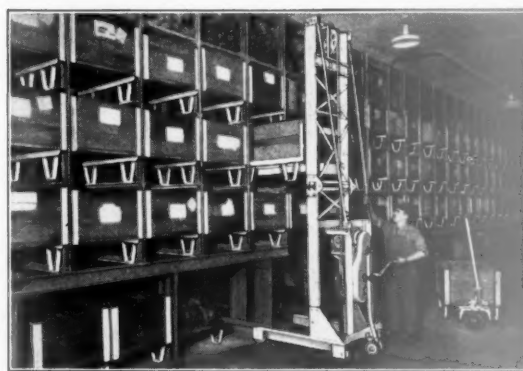
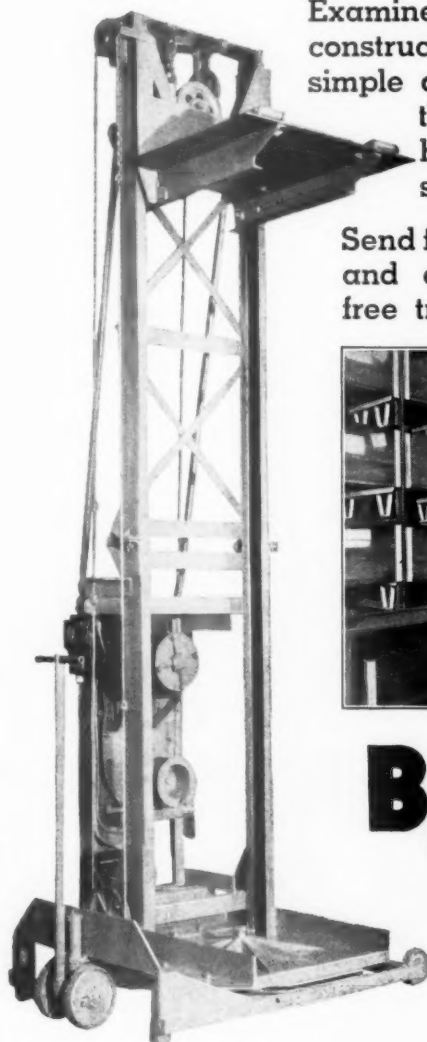
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